FEBRUARY, 1959

Commercial Fertilizer

and PLANT FOOD INDUSTRY

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SEE PAGE 19

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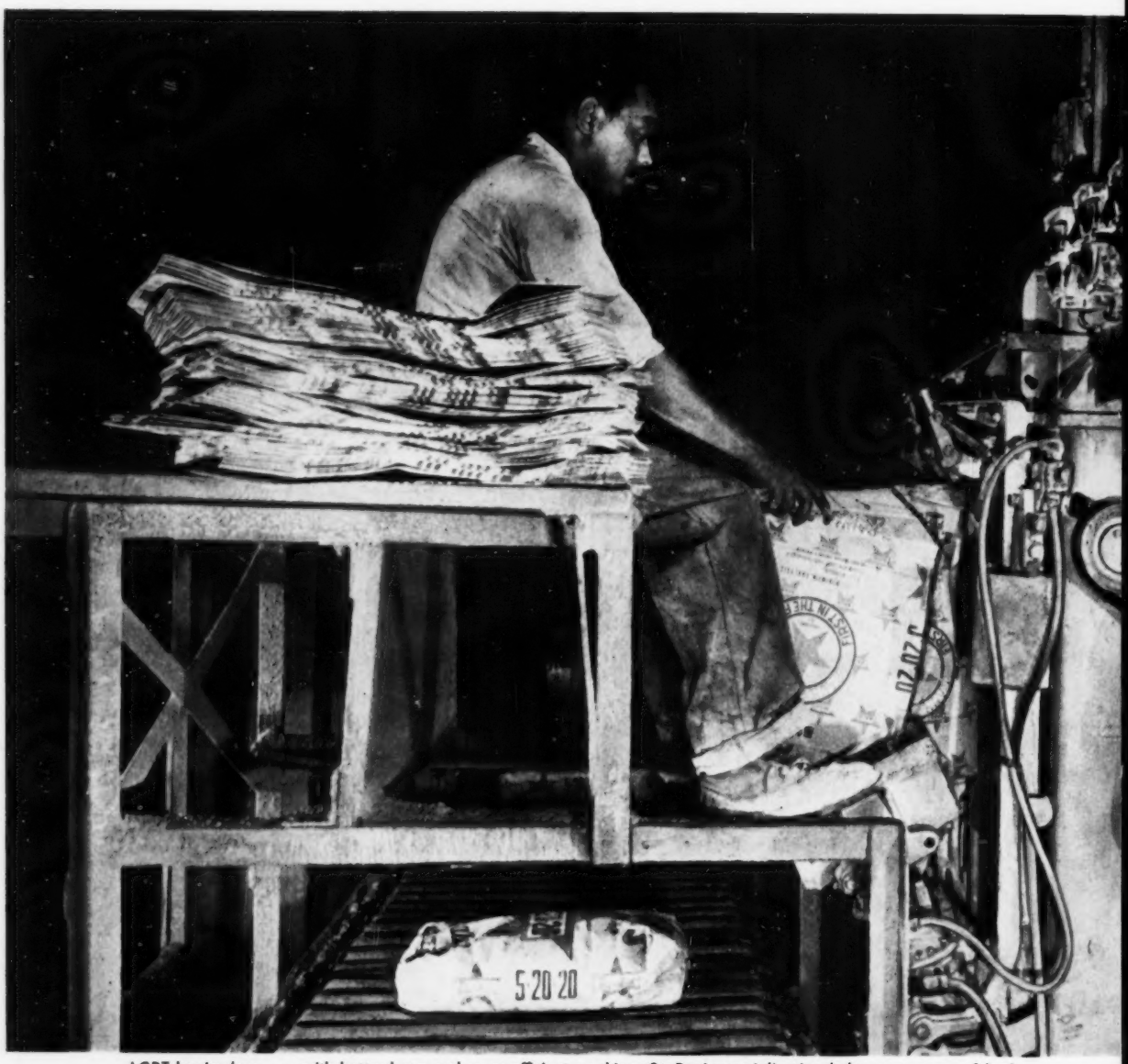

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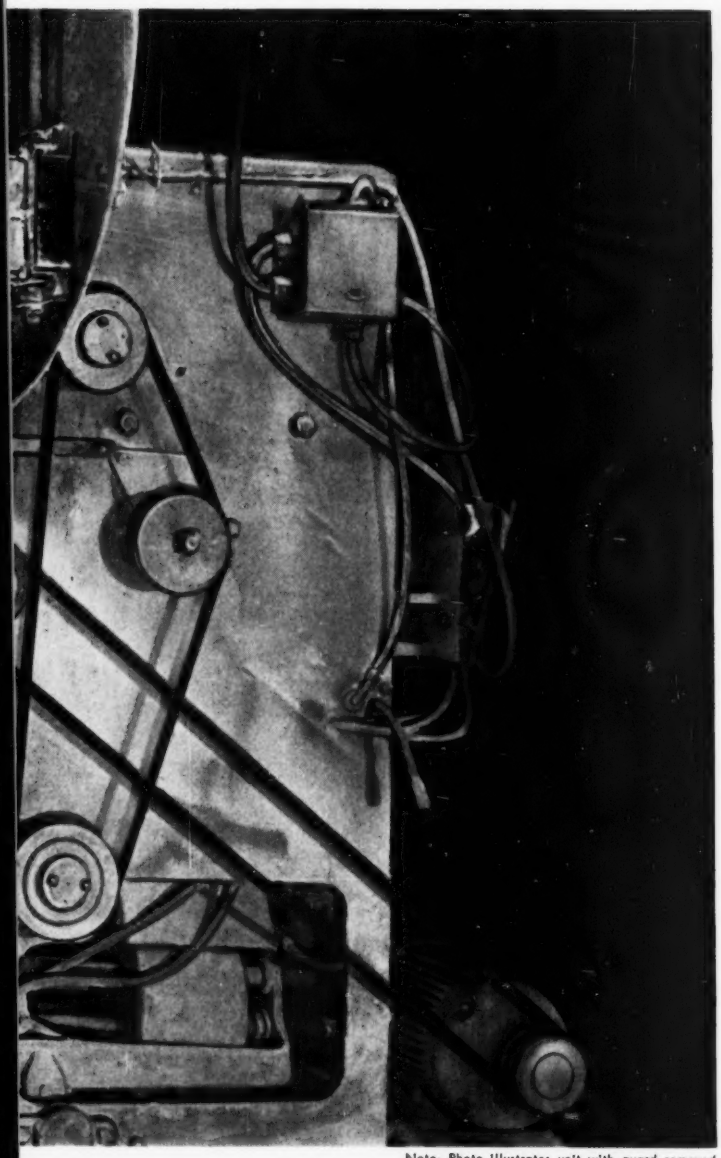

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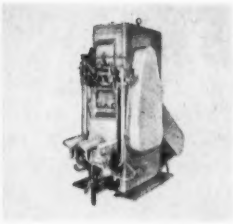

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Commenting Freely

by BRUCE MORAN

It is encouraging to see basic facts recognized. The chief spokesman for USDA, Assistant Secretary McLain, says "agriculture is very definitely becoming agribusiness." Our readers have long recognized this, and many have learned to get along with the new kind of farmer the term implies. But not enough.

Now comes International Minerals & Chemical with its Full Orbit plan, which is nothing more than good marketing applied to the fertilizer industry. We say "nothing more" . . . but to accomplish what IMC is doing called for vision by management, a lot of very hard work by the men who put the plan into tangible form, and a lot more hard work by the men who are taking it to fertilizer manufacturers in 9 regional meetings.

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JUST AROUND THE CORNER

By Vernon Mount

Fidel Castro, as we go to press, is still a problem child. What may develop in American-owned Cuban industry is in the lap of the gods and the US State Department. And that includes the fertilizer industry. Freeport Sulphur is in the midst of a $75,000,000 expansion program there. People like Allied Chemical, American Agricultural Chemical, Armour & Co., Olin Mathieson, W.R. Grace have heavy Cuban investments.

Closely linked to the US by economic ties, Castro could lose more for his country than we, if the two become alienated in this delicate period. We were not diplomatically smart, and our information was faulty. Our public, bridling in print about the execution of Batista hatchet men, does not help.

Optimism, however, seems to prevail both in Government and in Management circles. And it is to be hoped that this will be justified. We have close to $1,000,000,000 invested in Cuba. And we are the most important market for Cuban exports, notably sugar. Perhaps that will sweeten things!

Yours faithfully,

Vernon Mount

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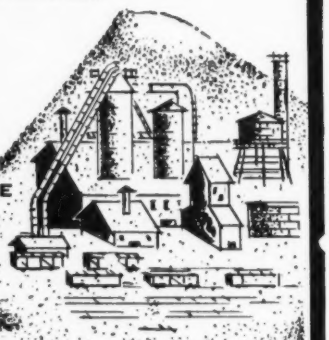

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GENERAL OFFICE: 100 Church Street, New York 7, N. Y.

preliminary report on consumption of

Commercial Fertilizers and Primary Plant Nutrients in 1957-58

by
Walter Scholl, Marion M. Davis, Anna W. Woodard, and Esther I. Fox
Fertilizer Investigations Research Branch
Soil and Water Conservation Research Division
Agricultural Research Service
U. S. Department of Agriculture
Beltsville, Maryland

Table 1. Fertilizers consumed as mixtures and as materials, year ended June 30, 1958, compared with consumption of previous year, by State and region[1] (Preliminary)

State and region	Mixtures	Materials[2]	Total	
			Consumption	Change from year ended June 30, 1957
	in thousands of tons			
Maine	171	11	182	10
New Hampshire	15	5	20	1
Vermont	42	17	59	4
Massachusetts	69	18	87	[3]
Rhode Island	16	2	18	1
Connecticut	66	23	89	4
New England	**379**	**76**	**455**	**20**
New York	522	81	603	25
New Jersey	222	24	246	—23
Pennsylvania	570	70	640	6
Delaware	74	4	78	—10
District of Columbia	3	1	4	1
Maryland	267	16	283	—9
West Virginia	64	9	73	—9
Middle Atlantic	**1,722**	**205**	**1,927**	**—19**
Virginia	610	98	708	—64
North Carolina	1,162	302	1,464	—103
South Carolina	526	207	733	—85
Georgia	992	256	1,248	—46
Florida	1,296	165	1,461	—16
South Atlantic	**4,586**	**1,028**	**5,614**	**—314**
Ohio	950	103	1,053	18
Indiana	856	225	1,081	—6
Illinois	531	891	1,422	52
Michigan	554	61	615	—22
Wisconsin	394	42	436	10
East North Central	**3,285**	**1,322**	**4,607**	**52**
Minnesota	323	122	445	19
Iowa	332	202	534	65
Missouri	402	354	756	—46
North Dakota	30	76	106	25
South Dakota	11	23	34	9
Nebraska	30	202	232	63
Kansas	63	128	191	—21
West North Central	**1,191**	**1,107**	**2,298**	**114**
Kentucky	431	92	523	—19
Tennessee	400	92	492	—53
Alabama	693	269	962	—78
Mississippi	254	374	628	—118
East South Central	**1,778**	**827**	**2,605**	**—268**
Arkansas	139	151	290	—37
Louisiana	148	129	277	—12
Oklahoma	57	50	107	—1
Texas	286	381	667	72
West South Central	**630**	**711**	**1,341**	**22**
Montana	3	36	39	—5
Idaho	12	92	104	18
Wyoming	2	10	12	2
Colorado	15	66	81	22
New Mexico	2	37	39	1
Arizona	32	172	204	26
Utah	6	26	32	—1
Nevada	3	19	22	15
Mountain	**75**	**458**	**533**	**78**
Washington	53	192	245	60
Oregon	26	165	191	—27
California	302	1,871[4]	2,173	45
Pacific	**381**	**2,228**	**2,609**	**78**
Continental U. S.	**14,027**	**7,962**	**21,989**	**—235**
Hawaii	46	90	136	—58
Puerto Rico	179	54	233	—58
Territories	**225**	**144**	**369**	**—116**
Total 1957-58	**14,252**	**8,106[5]**	**22,358**	**—351**
1956-57	**14,703**	**8,006[5]**	**22,709**	**0**
1955-56	**14,776**	**7,418[5]**	**22,194**	**—515**

[1] Includes fertilizers distributed by Government agencies. Due to rounding, column or cross totals may not balance.
[2] Includes: ground phosphate rock and colloidal phosphate, basic slag, secondary and trace nutrient materials, as borax, metallic salts, sulfur, gypsum, etc. used as separate materials. Does not include liming materials or the quantity of materials used for manufacture of commercial mixtures.
[3] Less than 500 tons.
[4] Includes an estimated 260,000 tons of dried manures.
[5] Materials included not guaranteed to contain N, P_2O_5, or K_2O totaled 940,000 tons in 1957-58, 943,243 tons in 1956-57, and 789,605 tons in 1955-56.

Fertilizers

The consumption of fertilizers in the United States and Territories (Hawaii and Puerto Rico) during the year ended June 30, 1958, was 22,358,000 tons, a decrease of 351,000 tons (1.5 percent) from that used in the preceding year (Table 1). Consumption of mixed fertilizers amounted to 14,252,000 tons—a decrease of 451,000 tons (3.1 percent)—and of materials for direct application to 8,106,000 tons—an increase of 100,000 tons (1.2 percent). Included in the materials are 7,155,000 tons of products containing one or more of the primary plant nutrients (N, available P_2O_5, K_2O), 940,000 tons of secondary and trace nutrient materials, and 11,000 tons not classified. The use of materials containing primary nutrients increased 92,000 tons (1.3 percent) and secondary and trace nutrient materials decreased 3,000 tons (0.3 percent) from the respective quantities in 1956-57.

The consumption of all fertilizers increased in 26 areas and decreased in 25 areas. While most States in the northeastern, north central, and western half of the continent used more fertilizers, all States in the southeast and most of those in the south central part used less. More than one-half of the decrease in consumption of fertilizers was due to the decrease in the South Atlantic and East South Central regions and the Territories.

Mixtures

The consumption of mixed fertilizers increased 160,000 tons in 25 areas and decreased 611,000 tons in 26 areas. Areas in which the principal increases and decreases occurred followed closely those areas having corresponding changes in consumption of all fertilizers.

Fifteen grades represented 64 percent of the tonnage of mixed fertilizers consumed on the continent in 1957-58 (Table 2). Of these, 14 also were the grades used in largest tonnage in 1956-57 (grade 3-9-6 having been replaced by grade 5-10-15). Although the tonnage of these individual grades changed, the combined totals of these 14 were nearly the same in both years (8,651,000 tons in 1957-58 and 8,703,027 tons in

The Measure of Quality

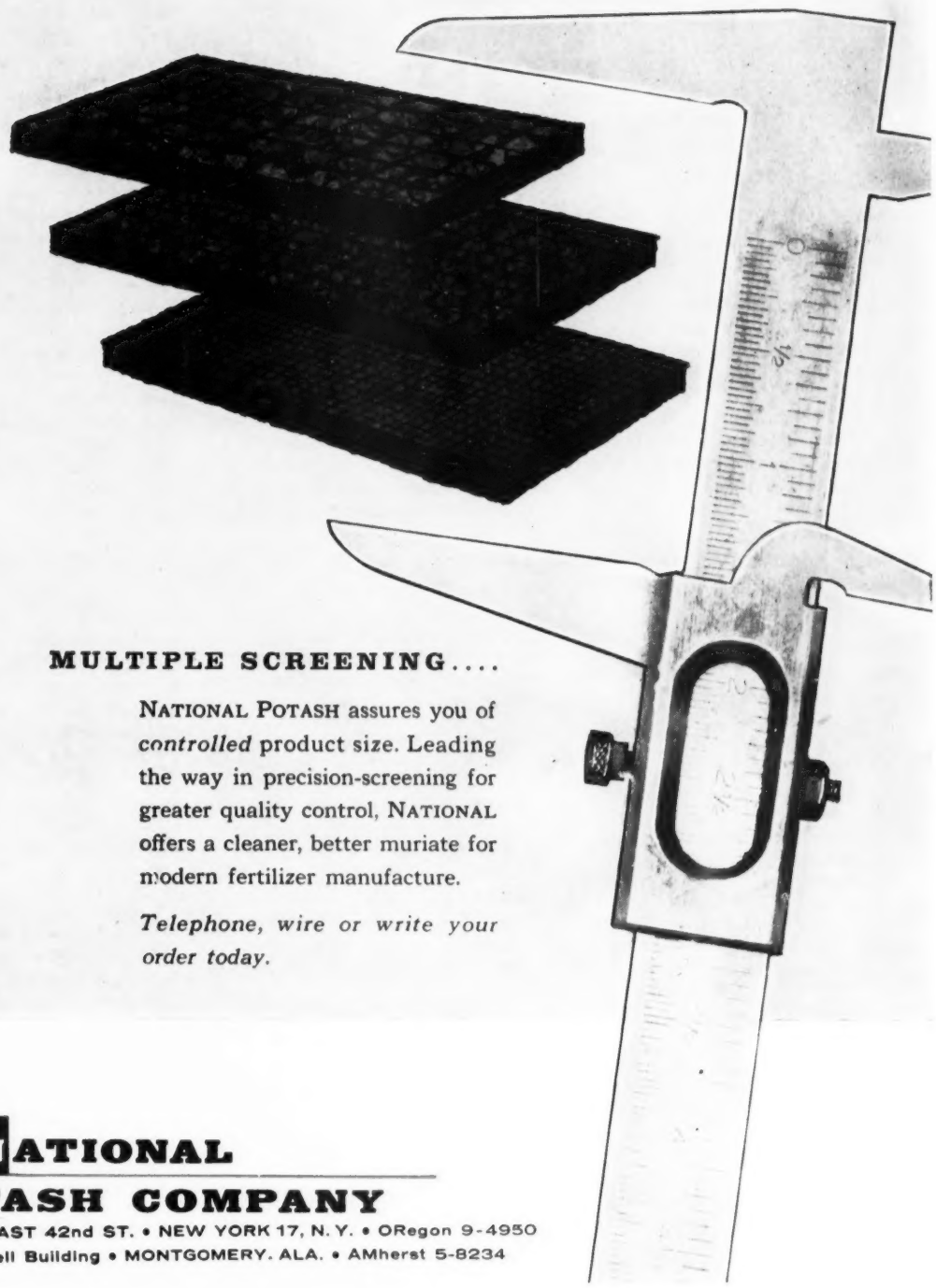

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Table 2. Fifteen principal grades of mixed fertilizers consumed in the continental United States, year ended June 30, 1958, by region, in 1,000 tons (Preliminary)

Grade	New England	Middle Atlantic	South Atlantic	East North Central	West North Central	East South Central	West South Central	Mountain	Pacific	Continental United States
5-10-10	48	667	571	110	1	34	9	—	4	1,444
4-12-12	—	20	814	2	[1]	188	[1]	—	—	1,024
5-20-20	—	1	1	591	196	18	13	[1]	—	820
4-16-16	—	1	1	765	19	5	[1]	—	—	791
10-10-10	63	172	66	256	60	49	5	1	30	702
3-12-12	[1]	26	58	530	34	38	15	—	—	701
12-12-12	5	17	3	397	223	12	42	[1]	1	700
3-9-9	—	[1]	490	[1]	—	—	—	—	—	490
5-10-5	6	177	102	12	5	77	86	[1]	—	465
6-12-12	2	35	20	28	10	287	4	—	—	386
5-10-15	[1]	152	51	10	—	121	[1]	—	—	334
4-10-7	—	—	34	—	—	273	—	—	—	307
2-12-12	—	25	271	—	—	3	—	—	—	299
0-20-20	18	68	4	128	34	22	10	—	—	284
6-8-8	4	[1]	45	[1]	—	178	11	—	—	238
Total	146	1,361	2,531	2,829	582	1,305	195	1	35	8,985
Percent of regional total	39	79	55	86	49	73	31	1	9	64

[1] Less than 500 tons.

1956-57) and represented over 60 percent of the consumption in each year. In all regions except the Mountain and Pacific, the tonnage of the 15 grades listed in Table 2 represented over 30 percent of the total tonnage of mixed fertilizers consumed in the respective regions. The trend in the Mountain and Pacific regions is to use grades having generally less potash than shown by the average of these 15 grades.

Materials

In 32 areas consumption of materials for direct application was 463,000 tons higher and in 19 areas 363,000 tons lower than in 1956-57. Use of materials increased in all States of the New England and East North Central regions and most of the States in the West North Central, Mountain, and Pacific regions. Decreases were in most of the southeastern and south central States, and the Territories.

Chemical nitrogen products were the only class of materials that showed an increase in 1957-58 (Table 3). The use of anhydrous ammonia increased 124,000 tons, nitrogen solutions 71,000 tons, and ammonium sulfate 57,000 tons. The consumption of anhydrous ammonia and nitrogen solutions increased in all regions where used except the East South Central, while that of ammonium sulfate increased in all regions except the Territories. The use of other chemical nitrogen products was generally lower in 1957-58 than in 1956-57.

The total use of natural organic materials decreased 12,000 tons but the consumption of dried manures increased 3,000 tons.

While the consumption of all phosphate materials decreased 5,000 tons, the use of ammonium phosphates and phosphate rock (including colloidal phosphate) increased 74,000 and 11,000 tons, respectively. The use of basic slag and normal and concentrated superphosphates decreased 8,000, 81,000 and 5,000 tons, respectively. The increase in ammonium phosphates and decrease in the other phosphate materials was general throughout all regions.

The consumption of potash materials decreased 26,000 tons and was lower in each of the regions.

Primary Plant Nutrients

The total quantity of primary nutrients contained in all fertilizers was 6,465,000 tons (Table 4). This was 88,000 tons (1.4 percent) more than in 1956-57. The total for 1957-58 comprised 2,264,000 tons of nitrogen, 2,280,000 tons of available P_2O_5, and 1,921,000 tons of K_2O. These

Table 3. Kinds of fertilizers consumed, year ended June 30, 1958, by region, in 1,000 tons[1] (Preliminary)

Kind	New England	Middle Atlantic	South Atlantic	East North Central	West North Central	East South Central	West South Central	Mountain	Pacific	Territories	Total Consumption	Change from year ended June 30, 1957
MIXTURES	**379**	**1,722**	**4,586**	**3,285**	**1,191**	**1,778**	**630**	**75**	**381**	**225**	**14,252**	**—451**
CHEMICAL NITROGEN MATERIALS	**13**	**71**	**725**	**363**	**489**	**523**	**449**	**231**	**861**	**116**	**3,841**	**135**
Ammonia, anhydrous	—	3	22	57	139	51	140	41	122	2	577	124
Ammonia, aqua	—	—	—	[2]	8	—	5	31	289	51	384	3
Ammonium nitrate[3]	7	30	126	134	243	285	106	62	103	—	1,096	— 9
Ammonium sulfate	1	6	11	97	12	11	98	57	227	53	573	57
Nitrogen solutions	1	4	83	59	82	9	25	7	47	—	317	71
Sodium nitrate	1	9	239	1	[2]	130	49	[2]	[2]	[2]	429	— 64
Urea	1	3	4	11	4	1	19	19	27	10	99	— 10
Other[4]	2	16	240	4	1	36	7	14	46	[2]	366	— 37
NATURAL ORGANIC MATERIALS	**25**	**36**	**21**	**38**	**12**	**2**	**8**	**5**	**321**	**[2]**	**468**	**— 12**
Dried manures	5	13	4	6	4	1	3	1	260	[2]	297	3
Sewage sludge, all	7	14	8	29	8	1	3	4	55	[2]	129	— 2
Tankage, all	2	8	4	[2]	[2]	—	—	—	1	—	15	— 4
Other[4]	11	1	5	3	[2]	—	2	[2]	5	—	27	— 9
PHOSPHATE MATERIALS	**33**	**85**	**104**	**727**	**557**	**248**	**217**	**176**	**251**	**13**	**2,411**	**— 5**
Ammonium phosphate[5]	—	1	2	14	149	4	91	76	135	2	474	74
Basic slag	—	—	20	—	—	132	3	—	—	—	155	— 8
Phosphate rock & colloidal phosphate	[2]	7	18	565	218	18	18	[2]	[2]	3	847	11
Superphosphate: 22% and under	32	70	50	58	42	75	59	16	72	5	479	— 81
Superphosphate: Over 22%	[2]	3	6	75	132	6	43	73	28	3	369	— 5
Other[4]	1	4	8	15	16	13	3	11	16	—	87	4
POTASH MATERIALS	**4**	**8**	**79**	**191**	**45**	**49**	**31**	**2**	**13**	**13**	**435**	**— 26**
Potassium chloride	2	5	35	187	45	41	29	2	6	11	363	— 13
Other[4]	2	3	44	4	[2]	8	2	[2]	7	2	72	— 13
PRIMARY NUTRIENT FERTILIZERS	**454**	**1,922**	**5,515**	**4,604**	**2,294**	**2,600**	**1,335**	**489**	**1,827**	**367**	**21,407**	**—359**
SECONDARY & TRACE NUTRIENT MATERIALS	**[2]**	**5**	**98**	**3**	**3**	**5**	**4**	**44**	**776**	**2**	**940**	**— 3**
Gypsum	[2]	4	96	2	—	2	—	35	745	[2]	882	— 9
Other[4]	[2]	1	2	1	3	3	4	9	33	2	58	6
NOT CLASSIFIED	**1**	**0**	**1**	**0**	**1**	**0**	**2**	**0**	**6**	**0**	**11**	
ALL FERTILIZERS	**455**	**1,927**	**5,614**	**4,607**	**2,298**	**2,605**	**1,341**	**533**	**2,609**	**369**	**22,358**	**—351**

[1] Due to rounding, totals of items may not add to column or class totals.
[2] Less than 500 tons.
[3] Minor quantities may have been used for other purposes than fertilizer.
[4] Includes quantities undesignated by kind.
[5] Includes all grades: 11-48, 11-50, 13-39, 16-20, 20-52, 21-53, and 27-14 reported.

Table 4. Primary plant nutrients consumed in mixtures and in mixtures and materials combined, year ended June 30, 1958, compared with consumption of previous year, by region, in 1,000 tons (Preliminary)

Region[1]	Nutrients in mixtures				Nutrients in mixtures and materials							
					Consumption				Change from year ended June 30, 1957			
	N	Available P_2O_5	K_2O	Total	N	Available P_2O_5	K_2O	Total	N	Available P_2O_5	K_2O	Total
New England	27	45	47	119	32	53	49	134	2	4	3	9
Middle Atlantic	98	206	191	495	122	224	197	543	5	—3	3	5
South Atlantic	219	429	473	1,121	399	448	500	1,347	—19	—15	—4	—39
East North Central	195	519	504	1,218	335	598	619	1,552	37	13	7	57
West North Central	95	220	152	467	349	356	179	884	64	2	[3]	66
East South Central	84	203	192	479	256	241	220	717	—31	—21	—16	—69
West South Central	55	97	63	215	267	153	81	501	36	—9	—3	24
Mountain	10	13	3	26	109	76	4	189	19	6	[3]	26
Pacific	38	43	24	105	339	114	38	491	30	7	2	39
Continental U. S.	**821**	**1,775**	**1,649**	**4,245**	**2,208**	**2,263**	**1,887**	**6,358**	**143**	**—17**	**—8**	**118**
Territories	27	14	27	68	56	17	34	107	—14	—7	—9	—30
Total: 1957-58	**848**	**1,789**	**1,676**	**4,313**	**2,264**	**2,280**	**1,921**	**6,465**	**129**	**—24**	**—17**	**88**
1956-57	844	1,817	1,682	4,343	2,135	2,304	1,938	6,377	0	0	0	0
1955-56	797	1,785	1,655	4,237	1,933	2,247	1,875	6,055	—202	—57	—63	—322

[1] The States comprising the regions are listed in Table 1.
[2] Includes, as available P_2O_5, 2 percent of the collodial phosphate and 3 percent of the phosphate rock marketed for direct application.
[3] Less than 500 tons.

quantities represent an increase of 129,000 tons (6.0 percent) for nitrogen and decreases of 24,000 tons (1.0 percent) for available P_2O_5 and 17,000 tons (0.9 percent) for K_2O. Although the total quantity of fertilizers carrying primary nutrients was 359,000 tons below consumption in the preceding year, the lower tonnage of fertilizers contained 88,000 tons more primary nutrients than the larger tonnage in 1956-57. This increase was due to the greater use of the chemical nitrogen materials.

The total consumption of primary nutrients contained in mixed fertilizers amounted to 4,313,000 tons, comprising 848,000 tons of nitrogen, 1,789,000 tons of available P_2O_5, and 1,676,000 tons of K_2O. These quantities represent 4,000 tons (0.5 percent) more nitrogen, 28,000 tons (1.5 percent) less of available P_2O_5, and 6,000 tons (0.4 percent) less of K_2O. Materials used for direct application contained 1,416,000 tons of nitrogen, 491,000 tons of available P_2O_5, and 245,000 tons of K_2O. These quantities represented increases of 125,000 tons (9.7 percent) for nitrogen, 4,000 tons (0.8 percent) for available P_2O_5, and a decrease of 11,000 tons (4.3 percent) for K_2O.

The weighted average of the primary nutrients contained in mixed fertilizers was for nitrogen, 5.95 percent; for available P_2O_5, 12.55 percent; for K_2O, 11.76 percent; and for the total of those nutrients, 30.26 percent. The corresponding values in the preceding year were 5.74, 12.36, 11.44, and 29.54 percent. The proportionate increase was highest for nitrogen and lowest for P_2O_5.

Unique Advertisement 'Sells' Production Loans

An experiment aimed at encouraging farmers to investigate complete production loans with their banker is now being conducted in Illinois and Indiana. It is believed to be the first large-scale experiment of its type and takes the form of a farm paper advertisement urging farmers in these two states to visit their bankers and discuss the merits of this type of loan.

Sponsored by Spencer Chemical Company, the advertisement features I. Frank Green of the Commercial National Bank, Peoria, Ill., and W. Haynes Starbuck of the Peoples' Bank, Portland, Ind. Both men are chairmen of the Agricultural Committee in their respective state bankers associations.

In the advertisement, appearing in the Illinois and Indiana editions of the PRAIRIE FARMERS' February 21 issue, both men advocate a complete production loan covering fertilizer, seed, fuel and all other requirements as "one of the soundest programs a farmer can use."

The logic behind this type of banker-farmer cooperation is stated this way: "A bank must make loans to make money, but we want to lend money to the people who will use it wisely . . . When you tell your banker you want a complete production loan covering all your expenses, including fertilizer, he respects your judgment. He knows you are going to use the money to make more money."

Following this advertising experiment, all participating banks will be surveyed to determine what response was made by their farm customers. This is the latest in a series of efforts by Spencer to stimulate banker-farmer cooperation and encourage proper plant food use.

Sulphur Use Down in '58, Increased in Late Months

Consumption of sulphur toward the end of 1958 registered an increase over earlier months but the gain was insufficient to bring the annual rate to the level achieved in 1957.

In an annual review Charles A. Wight, president of Freeport Sulphur Company, attributed the lessened use of sulphur to the decline in business activity. Since sulphur is one of industry's most widely used chemical raw materials, its demand follows very closely the trends of business activity in general.

Preliminary data indicated that total domestic consumption of sulphur was off fractionally from 1957, reflecting the lower output of such major consuming industries as paper, steel, petroleum refining, rubber and textiles. However, the relatively good year experienced by the fertilizer industry and segments of the chemicals industry, two of the largest consumers of sulphur, helped to bolster the consumption figure.

Sulphur production was also down, Mr. Wight said. Total output from all sources in the United States amounted to an estimated 6,200,000 long tons, compared with 7,000,000 tons in 1957. The drop in production was the result not only of lower consumption but also of increased imports and, more significantly, a cutback in stockpiling.

Research Results and Reports

The Purdue Research Foundation and the **Texas Company** have recently completed arrangements for initiating a new approach to research on fertilizer manufacturing not now in operation in other agricultural colleges.

Often, research on fertilizer manufacturing ends with the fertilizer produced. In the new approach, agronomy will suggest new desirable features for a fertilizer, chemical engineering will develop it, biochemistry will analyze the fertilizer for its compliance with nutrient content, and agronomy will test the new fertilizer for its crop production performance.

The proposed research will involve the School of Chemical and Metallurgical Engineering and the Departments of Agronomy and Biochemistry in the Agricultural Experiment Station at Purdue University, Lafayette, Ind.

The first phase of the research, which will probably require most of the first year, will be primarily in the School of Chemical and Metallurgical Engineering under the supervision of Dr. Lyle F. Albright, professor of chemical engineering. Dr. Albright will have Anantha Raman assisting him. Mr. Raman was previously employed in the fertilizer industry of India and has come to this country from the Institute of Science in India.

Dr. J. B. Peterson, professor and head of the Department of Agronomy, will supervise the testing of the fertilizers produced by Dr. Albright's group. Graduate students in agronomy will be used to assist in the testing of the fertilizers produced after the first year of work.

Dr. C. L. W. Swanson of the Texas Company, which is supporting the research financially, will have technical supervision of this research as a representative of Texaco.

It is hoped that the proposed research will produce information that will be of both theoretical and practical value to the fertilizer industry and to agriculture.

* * *

A new way to apply inoculant to legume seed that gives particularly good results in dry soils is described in a newly revised version of the **U. S. Department of Agriculture** farmers' bulletin, "Legume Inoculation, What It Is and What it Does."

Growers of such legume crops as alfalfa, soybeans, and clover commonly inoculate seeds with nitrogen-fixing bacteria cultures to get high protein livestock feed and to provide high quality organic material to build up soil nutrients for future crops.

The new treatment consists of mixing seed and inoculant with corn syrup or molasses, instead of water. When water is used, inoculation is often not effective in dry soils because the bacteria soon die from lack of moisture. The use of syrup or molasses helps to overcome this difficulty by helping to keep the bacteria alive in the soil for as long as 2 to 3 weeks. If it should fail to rain during this period, farmers are advised to re-inoculate the soil.

Tests by scientists of USDA's Agricultural Research Service increased alfalfa hay yields 84 percent over conventional inoculation procedures in dry North Carolina soils.

Inoculation exploits the phenomenon of nitrogen fixation. After the seed is planted and starts to grow, the bacteria cling to the plant roots, form nodules, and convert atmospheric nitrogen to a form which the plant can use to build protein.

The inoculation process is especially effective where the natural supply of nitrogen-fixing bacteria in the soil is low. Healthy plants are generally produced in soils abundantly endowed with the bacteria and necessary plant nutrients exclusive of nitrogen.

Single copies of "Legume Inoculation, What It Is and What It Does," Farmers Bulletin No. 2003, are free on request from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

* * *

What is the most profitable rate of applying fertilizer?

Since response of crops to fertilizers varies with the soil, season, and other environmental factors, the answer is not an easy one. But in an effort to determine principles to follow, two **Kansas State College** investigators, Frank Orazem and Floyd W. Smith, recently completed an extensive study of use of fertilizer on 1956 corn grown on Verdigris soil in eastern Kansas.

While their findings, published in an agricultural experiment station technical bulletin, "An Economic Approach to the Use of Fertilizer," are applicable only to the limited conditions of this one experiment, the principles they evolve should prove a useful guide to anyone dealing with fertilizers. Orazem, an agricultural economist, and Smith, a soil scientist, plan additional studies to give aid in deciding on profitable use of fertilizer.

* * *

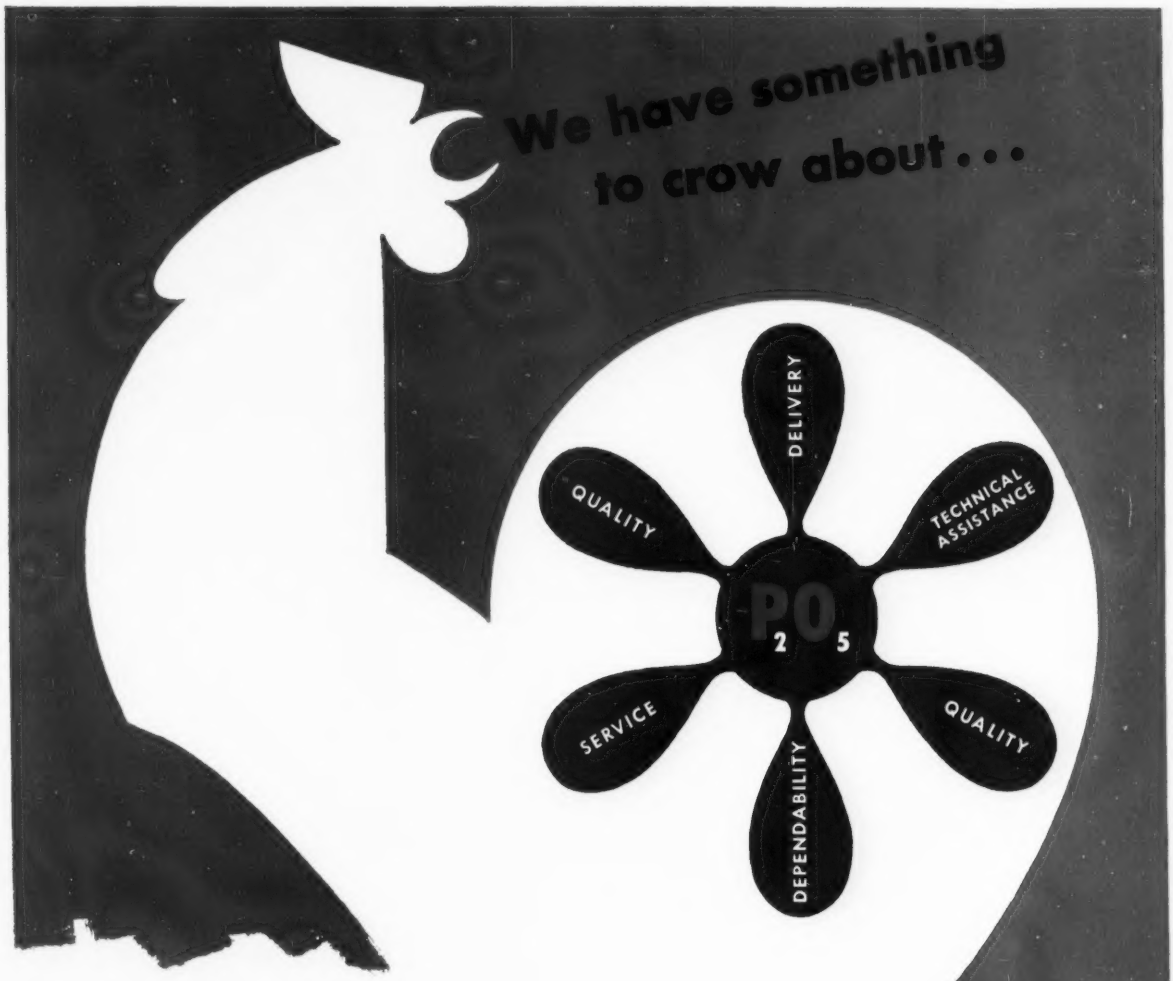
Broad Fertilizer Research is taking a long step forward under the auspices of the **University of California, Citrus Experiment Station,** Riverside according to the California Fertilizer Association.

Under the direction of Dr. Parker F. Pratt, Department of Soils and Plant Nutrition, a new Lysimeter Project has been placed in operation which will give valuable information on what happens to plant nutrients in a given soil under irrigated crop production for many years.

The project consists of 24 tanks approximately 5 feet in diameter and 6 feet deep which have fiberglas liners inside of a metal shell, in order to insure against contamination. Last year the tanks were filled with four different soil types and then allowed to leach of excess salts under the winter rains. This summer 30 gallon tanks were connected to collect all future leachate water, tensionmeters installed to measure soil moisture, a high steel fence erected around the plot for rodent control and recently Dr. Pratt has planted a winter crop of swiss chard.

All the tanks have been fertilized with uniform phosphate and nitrogen applications, employing three different sources of nitrogen; one residually acid, one residually basic and one neutral in character. With three nitrogen sources on four different soil types and two replications of each, all 24 tanks are thus utilized. By analyzing and measuring all irrigation water that is applied as well as the fertilizers, and then analyzing the harvest and any leachate that occurs, Dr. Pratt and his co-workers will be able to accurately determine the net change in plant nutrients from year to year. Although this is designed to be a long term project over many years, they hope to accelerate the program as much as possible through double cropping.

Since they want to know the answers on minor plant food elements as well as on the major ones, these



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✱ ($S_1Q_2D_2TA_1$) The Davison formula of properly proportioned parts of Service, Quality, Dependability, Delivery and Technical Assistance ($S_1Q_2D_2TA_1$) is as important to you in your choice of source as anything else we could name.

In every field, there is always one particular brand that is so outstanding that it is head and shoulders above the competition. That is true of Davison Hi-Flo Gran-U-Lated Triple Superphosphate. Here is the product that *is* the standard of comparison for all other granulated triples. Davison Gran-U-Lated Triple Superphosphate is uniform in particle size . . . dust free and will not break down or crumble in the bag. It is ideal for direct application or for formulation of dry materials. Most of all, with Davison Gran-U-Lated you are certain of constant uniformity . . . it is GUARANTEED 46% available P_2O_5 . . . every time.

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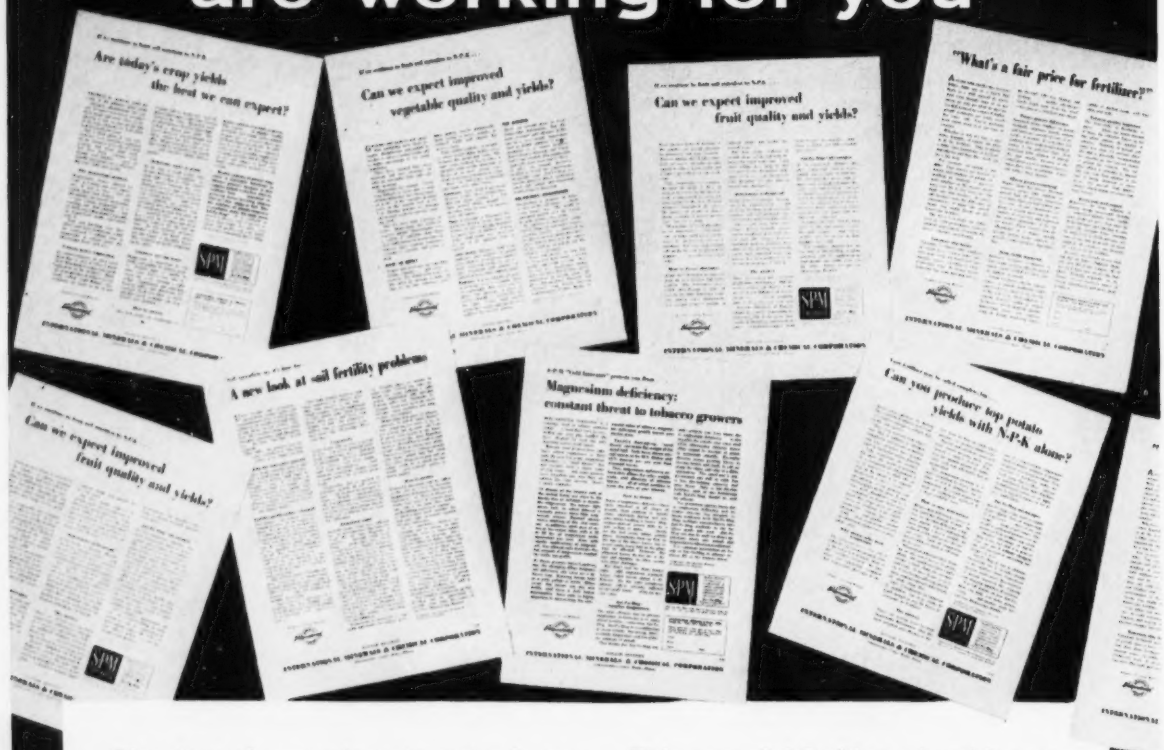
Are today's crop yields the best we can expect?
Can we expect improved vegetable quality and yields?
Can we expect improved fruit quality and yields?
"What's a fair price for fertilizer?"
A new look at soil fertility problems
Magnesium deficiency: constant threat to tobacco growers
Can you produce top potato yields with N-P-K alone?
Can we expect improved fruit quality and yields?

The story of magnesium starvation is one which needs telling and re-telling. And that's just what Sul-Po-Mag advertising does . . . tells and sells through factual, believable messages in dozens of magazines which your customers read. A few of these ads are shown above.

This year Sul-Po-Mag advertising appears regularly in magazines reaching 2,567,000 farmers and growers. These informative messages are designed to increase interest in magnesium deficiencies, help farmers and growers to better understand plant feeding problems.

Use this seal to identify your fertilizer . . . growers look for it

S·P·M PREMIUM

Quality fertilizer containing a combination of readily available magnesium and sulphate of potash obtained from *Sul·Po·Mag*®
(DOUBLE SULPHATE OF POTASH & MAGNESIUM)

You can take advantage of the increasing demand for Sul-Po-Mag this year . . . formulate premium fertilizer containing Sul-Po-Mag. Write or call us for more information.

Sul-Po-Mag

Creators of Living Minerals

MINERALS International CHEMICALS

POTASH DIVISION
INTERNATIONAL MINERALS & CHEMICAL CORPORATION
Administrative Center: Skokie, Ill.

6-59

Advertisements like this in full color are appearing every month during the fertilizer season in Farm Journal, Farm & Ranch, Progressive Farmer, and Capper's Farmer.

Hi-D®...the only ammonium nitrate that's granular!

the helping hand that boosts your yield

Give your land the helping hand of Hi-D. See for yourself why Hi-D is better than any other ammonium nitrate.

Hi-D handles so well—in storage and in spreading. *Only Hi-D is granular.* High in density, Hi-D is super dry—has less tendency to pick up moisture prior to application even under humid field conditions. Result: Hi-D always flows freely—doesn't gum-up—won't clog, cake or bridge in the spreader. And still another advantage, you can get up to 20% more ammonium nitrate in the hopper to reduce loading stops.

Hi-D contains 33.5% of available nitrogen. This crop-boosting nitrogen comes in two equal "servings"—your crops get half *nitrate* nitrogen for vigorous early growth and half *ammonia* nitrogen for sustained follow-up feeding.

This year, let Hi-D help boost your yield. but remember—sound management calls first for soil testing, a liming program if needed, and the necessary balanced mixed fertilizer. Then, a supplementary feeding of nitrogen—the heart of the harvest. Make it Hi-D ammonium nitrate . . . see your dealer.

THE BEST SOLID NITROGEN!

COMMERCIAL SOLVENTS CORPORATION • OFFICES IN ATLANTA, CHICAGO, CINCINNATI, KANSAS CITY, ST. LOUIS, STERLINGTON, LA.

MURIATE OF POTASH for the PLANT FOOD INDUSTRY

THIS symbol stands for high-grade uniform, coarse and granular Muriate of Potash (60% K_2O minimum). Southwest Potash Corporation provides a dependable supply of HIGH-K* Muriate for the plant food industry.

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scientists plan to analyse all forage and leachate samples for all of 16 or 18 elements essential for plant growth.

* * *

Making the best use of limited water resources for crop production in the semi-arid High Plains areas of the Southwest demands proper timing of irrigation and maintenance of soil fertility, according to the **U. S. Department of Agriculture.**

These basic requirements were established in studies conducted during the past three growing seasons at Bushland, Texas, by Marvin E. Jensen and William H. Sletten, engineers of USDA's Agricultural Research Service. The engineers worked with the cooperation of the Texas Agricultural Experiment Station.

Hybrid grain sorghum was used as the test crop. Greatest production efficiency resulted when: (1) at least 20 to 22 inches of soil moisture was available during the growing season; (2) soil moisture was adequate during the boot and soft-dough stages of sorghum grain development; and (3) soil fertility was maintained at a high level by using up to 240 pounds of nitrogen and 30 pounds of phosphorus per acre.

The studies also demonstrated the relationship of maintained soil fertility to efficient use of water. In 1957, on one plot where nitrogen was deficient only 255 pounds of grain was produced per acre-inch of water, compared with 355 pounds on another plot where nitrogen fertilizer was available. Production through the use of nitrogen in 1958 was 316 pounds per acre-inch, compared to 164 pounds without nitrogen.

Mushrooms from Sawdust

A fine way to put to work all those sawdust piles which have worried a lot of us turns up in the finding that the 53,000,000 annual tons of the stuff can be used to grow mushrooms. This from the University of Florida.

It seems the mushroom is smarter than the scientists who have been struggling with a practical way to use sawdust. The mushroom knows how.

Red Lead Holds Steel for 50 Years

When the New York Elevated system was dismantled, it was found that red lead had protected the structure through half a century.

Arcadian® News

Volume 4 | For Manufacturers of Mixed Fertilizers | Number 2

FERTILIZER SALES OUTLOOK IS PROMISING FOR 1959!

Survey Reveals Widespread Optimism

Many signs point to a promising year for fertilizer sales in 1959. To determine the market potential for the coming year, Nitrogen Division recently surveyed opinions of fertilizer men across the country. If weather conditions are normal or better, fertilizer men everywhere agree most factors indicate a good fertilizer year ahead.

Acreages of major crops are expected to increase, it was pointed out in a large number of interviews. Corn acreage probably will rise from 74.4 million acres in 1958 to 77 or 78 million acres in 1959. Cotton acreage will be upped from 11.9 million to approximately 17 million acres. Planted acreage of winter wheat exceeds last year by a million.

Although the Conservation Reserve probably will increase by about 12 million acres, the end of the Soil Bank's acreage reserve will release more than 17 million acres. This will mean a net of about 5 million acres more in production in 1959 over 1958.

Farm Income Good

Farm Income as a whole has been good this past year, which means farm finances now are in better shape.

Production costs on the farm have continued to increase, but fertilizer costs have not. Fertilizer prices have remained constant to slightly lower, and industry leaders agree this should lead to increased fertilizer use as a method of reducing farm unit costs of production.

Another fact repeatedly mentioned by fertilizer representatives is that last year's heavy yields of crops placed a heavy drain on basic plant food nutrients. Prudent farmers know such yields have robbed the soil of important elements. Also, this will be emphasized to growers by many county agents and other agricultural advisors.

U.S.D.A. agricultural scientists at Beltsville, Maryland, recently listed important plant foods lost in 1958, and gave the following priority to their replacement in the soil: Nitrogen is first, potash second and phosphorus third.

Southern Comments

A sample opinion in Georgia about the coming fertilizer season is that tonnage will reach an all-time high in that state. "Movement of this fertilizer will be earlier than 1958 and a little more evenly distributed, barring bad weather conditions," a fertilizer industry spokesman emphasizes. "At least 95% of all manufacturers believe there will be a record tonnage sold in the spring of 1959," he says.

From South Carolina comes a similar statement. An industry leader explains: "Spring sales of mixed fertilizer are expected to increase by 10 to 12% over last year. They will probably go up to 450,000 tons.

"Largest increase is expected in areas where cotton is the main crop. In heavy cotton-producing areas, manufacturers believe sales will rise 20 to 30%," he concludes.

A Kentucky-Tennessee fertilizer man estimates cotton-producing counties will experience a 15 to 20% fertilizer sales increase. "However, sales in non-cotton producing counties will be up only 4% over last spring," he predicts. "There is no pessimism about fertilizer sales being expressed by any manufacturers."

A Mississippian comments: "Cotton and rice will show increased mixed goods usage; perhaps up as much as 10%."

Southeast Is Optimistic

Farther down the Eastern Seaboard some optimistic statements are heard. One Virginia manufacturer believes fertilizer consumption may increase 10% this year due to absence of the Soil Bank.

(Continued on next page)

(Continued from preceding page)

A North Carolina manufacturer says he estimates 20% less potatoes will be planted this year, and the acreage will be shifted to corn and other crops. "This will show an increase in the use of Nitrogen for side or top-dressing application," he declares.

Another North Carolina manufacturer estimates a 10 to 15% increase in the use of fertilizer in the Piedmont Area. A number of comments point out that fertilizer will move two to three weeks earlier than last spring, weather permitting.

Eastern Situation Different

With a different crop situation in the East, fertilizer prospects appear to be good, though not as outstanding as in the South. According to one fertilizer man, "Sales of mixed goods probably will increase this spring. The outlook in New Jersey may not be quite as bright as in Pennsylvania. Although New Jersey had a poor season last year, we still expect farmers to shoot for high yields in order to recover. Pennsylvania should find not only greater use for fertilizer, but also for higher-analysis goods, such as 10-10-10 and 8-16-16.

"New Jersey will plow down and side dress according to crop needs," he explains, "and Pennsylvania will continue to plow down and use starter fertilizer rather than side dress.

"With a large dairy industry that has fertilized at low levels in the past, but that now is awakening to the value of high fertilization, we hope for a very good spring."

A comment which summarized the general picture for the Northeast was as follows: "There is a definite trend toward use of higher-analysis fertilizers, both granular and semi-granular. This mainly is due to recommendations from college experiment stations for use of larger amounts of higher-analysis fertilizers per acre.

"The spring of 1958 was late, and with average weather conditions, it is expected that spring movement of fertilizer this year will be at least two weeks sooner. Thus fertilizer manufacturers will in all probability experience an earlier movement, but not as extremely peaked as last year."

Other Markets Analyzed

"Northeastern cash crops such as potatoes, apples, grain corn, small grains and vegetables experienced a poor year either in yield or in market price of the product," one fertilizer man points out. "This would tend to limit the volume of mixed fertilizer, but on the other hand the general dairy farmer will use more fertilizer this year than last.

"Another factor important to the Northeast," he goes on, "is the specialty market for home and garden use. This market should increase appreciably in 1959."

A New York state fertilizer man agrees with the trend toward higher-analysis granular fertilizer and believes it will increase greatly this spring. He estimates there will be a slight increase in tons of plant food sold. This is based on the opinion that cash crop vegetable and grain farmers will hold steadily or decrease only slightly their acre plantings and fertilizer use this spring, while dairy farmers will increase their fertilizer use.

In Maine a fertilizer leader notes: "There is generally a feeling of optimism about tonnage in New England, with the possible exception of Aroostook County, Maine, where potato prices have been distressing. But bright spots elsewhere offset the Aroostook situation.

"Manufacturers are becoming more aware of the dairy potential. Examples of this are found in the new higher-analysis 1-1-1 ratios and the new 3-2-2 ratios and plans built around nitrogen with mixed grades to fit.

"Tobacco in the Connecticut Valley will definitely be increased. The sale of fertilizer in bulk is probably a way that some manufacturers can increase sales. I believe sales will be as good as last year and perhaps a little better. The dairyman is our chance to grow."

Midwestern Opinions

"More tons of high-analysis fertilizer and a greater tonnage of all ratios will be sold in Indiana and Southern Ohio this spring as compared with last." This is the comment of one fertilizer representative contacted during the Nitrogen Division survey.

"Many plants have already noted an increase for the coming year," he explains, "although the bulk of the movement will come at planting time and peaking of shipments is expected to exceed last year. Almost every plant anticipates an increased tonnage over 1958 due to an acreage increase in corn."

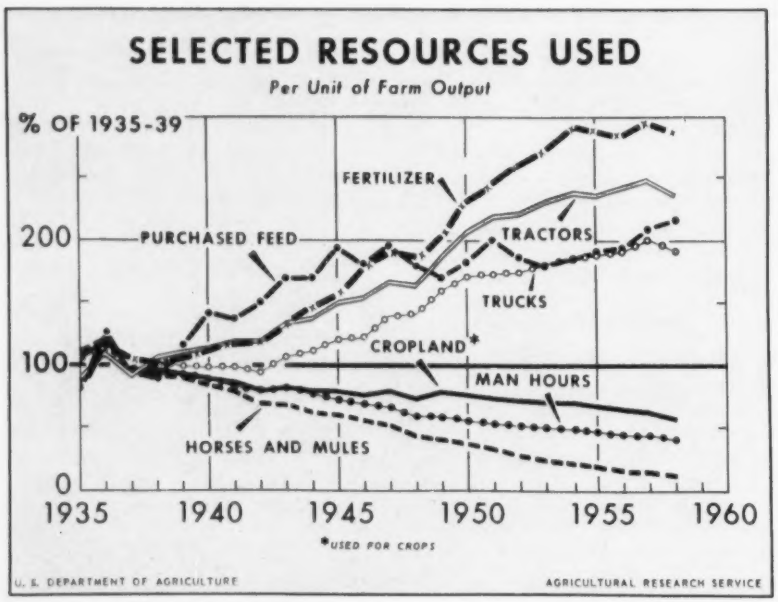
Here is another similar comment from a fertilizer spokesman: "Anticipated sales of fertilizer in the North Central part of the Midwest are good for the spring season. Crop yields and fertilizer responses were good to excellent last year. Capital for fertilizer expenditure is available."

Best Outlook Since 1954

As one Minnesota manufacturer said, "The only thing that can prevent this spring from being a boom season is the weather—either too wet or too dry."

An Iowa manufacturer added, "We are looking our best season in the eye!"

These comments reflect the optimism prevailing throughout the area. There is a definite indication from dealers that farmers will start taking delivery of fer-



tilizer earlier than in previous seasons.

"In Illinois," a fertilizer man emphasizes, "there is more hope for the coming season than any year since the drouths of 1953 and 1954. Prior to last year, mixed fertilizer tonnage had been reduced annually for four years. It sagged to its lowest spring tonnage since 1951. Last spring there was a small increase in tonnage of 40,000 tons. It is hoped the tonnage this spring will equal or even surpass the 447,000 tons sold in the spring of 1954 in Illinois," he concludes.

Prospects also are bright in Iowa. The 1958 crops sets a record in this state. Farmers are ready to buy more fertilizer than ever before, surveys indicate.

Similar views are expressed in Kansas and Nebraska where another fertilizer man again underscores the fact that manufacturers are more optimistic than any year since 1954. "The fall movement of fertilizer was the best since that season," he states. "There was considerable buying in November and December of 1958, and much of this tonnage was insecticide-fertilizer mixtures. The November vote on corn allotments makes manufacturers feel pretty certain that a lot more acres of corn will be fertilized in the spring ahead. Also, moisture of surface and subsoils is generally very adequate at this point."

Views From The West

"Throughout the Rocky Mountain area," says a fertilizer man, "more high-analysis fertilizers and straight materials will be sold. More companies will produce these products.

"The large dealers already have begun ordering carload lots. Prices are down generally, but everybody is hopeful for greater movement of everything they can sell this year."

Good Spring Season Ahead

While the outlook for fertilizer sales is brightest in the Midwest and South, as was expected, opportunities in the East and West are also promising.

In a few scattered areas where only small enthusiasm is voiced, this seems to stem from the fact that there were abundant crops which glutted the market last year and brought farmers low margins of profits, resulting in a lack of capital for fertilizer investment.

However, it is significant to note that there are no serious reports of pessimism by fertilizer men in any section of the country. Throughout the country as a whole, there is a landslide of optimistic reports. A good spring season appears to be ahead for the fertilizer industry!

Millions of children, like this little girl and her baby brother, will need increased farm production during the years ahead.

Boom in Babies Builds Huge Future Markets!

By the year 2,000, if our population grows at its present rate, we will be a nation of 388 million people, or 213 million more than today. Even by 1980, our population will be 100 million greater than today. In 1980, we will need 44½ billion quarts of milk—16 billion more than we produced in 1958. We will eat 23 billion pounds of beef, 17½ billion pounds of pork, and 33 billion pounds of flour. Our use of textile fibers will be up to 10½ billion pounds per year.

Right now, we in America have plenty of food. In 1958, we produced more than ever before, on the smallest crop acreage in 40 years. We have mounting surpluses of certain crops like wheat. But our total food production is only a few percentage points greater than our needs. By the early 1960's, many experts feel production and needs may equalize.

Less Farm Land

In the meantime, we are losing 1¼ million acres of farmland per year to homes, highways and factories. Cities, roads, railroads and factories occupy more than 115 million acres of land now—when our population is 175 million people. Add 213 million more people, and it's easy to see that much good farmland will go out of production by 1980.

True, we continue to drain swamps and plow up grassland. Several million acres of brushland are being reclaimed to grow grass to produce beef. We irrigate more land, but water supplies are limited. As population increases, less water is left for crop use. Desalting seawater and pumping it uphill to farmland is still prohibitive in cost. At $200 per acre foot, f.o.b. sea level, desalted seawater is no bargain! And cloud seeding as yet cannot be depended upon for crop expansion.

A person can eat only so much food per year. But in recent years, we have been upgrading our diets. We eat more meat, milk, eggs, vegetables, fruit and less grain and potatoes. It takes more agricultural effort to produce these prized foods. And population growth will expand our food needs in two ways.

(Continued on next page)

(Continued from preceding page)

One is by greatly increased numbers of mouths to feed. The other is in the increased proportion of teenagers and young people in our population. Teenagers eat far more than young children or older people.

Bigger Farms

Each year we are farming our land better. But there is less new land to farm. Labor, taxes, land prices, and poor quality of marginal farm lands all limit the practical expansion of crop acreage. Farms get bigger, however, because the size of business must increase to earn a family livelihood.

Modern farm methods continue to boost crop and livestock yields from every acre. Power machinery, improved seed, weed killers, other chemicals—all boost yields per acre. Fertilizer—far above anything else—is helping to make farming more efficient. And the cost of fertilizer has remained low as compared to other things the farmer buys.

Need for Fertilizer

If our crop yields were to stay where they are, we would need 300 million more acres of cropland by 1980. We will not have the land. But we will have enough fertilizer to produce 57% more food on about our present crop acreage.

Actually, we are far from farming "as good as we know how"—with fertilizer. In 1958, a banner year for corn yields, we averaged 51 bushels per acre. Yet thousands of farmers get 100 bushels per acre, hundreds get 200 bushels per acre. How do they do it? By planting thick enough, and using enough fertilizer. Only 60% of our cornland gets any fertilizer at all. And the corn that is fertilized averages less than 300 pounds per acre. The big yields come with 500 to 1,000 pounds of fertilizer per acre.

Other large-acreage crops get less fertilizer than corn. Only 30% of our wheat and 26% of our improved pastures are fertilized. Even with high-value crops like fruit and vegetables, only 68% of the area planted gets commercial fertilizer. There is all kinds of room for expanding fertilizer tonnage.

Land Alone Not Enough

Every year farmers (and other people) keep bidding up the price of farm land. Yet every year the importance of land to food production becomes smaller. What farmers put into the land is what makes big crops and big profits. We can't afford to put a lot of labor into a crop-acre. And we don't have to. We can use more fertilizer! Fertilizer builds big yields at low cost per bushel or pound. When 30¢ to 40¢ worth of fertilizer makes an extra bushel of corn, worth $1 or more, it pays well to use a lot of fertilizer on every acre. When it costs $40 for land, labor, taxes, seed and machinery to grow a 50-bushel corn crop, and it costs $58 to grow a 100-bushel crop with fertilizer, it is easy to see that the profits lie in higher yields. We will need more food, and fertilizer can produce it at low cost for the consumer and big profits for the farmer. The selling of fertilizer is going to be a good business in the years ahead—and a service to the human race!

Prepare Now for the Spring Rush

With the big spring fertilizer season just around the corner, it's wise to get ready now to handle a large volume of orders. Then you will be set to make the most out of all your sales opportunities. Here are some helpful tips:

1. Build all the inventory you can hold to meet the spring rush. Make sure you have sufficient mixing and bagging facilities. Additional warehouse facilities in your heaviest areas will be good insurance this spring, in case of bad weather.

2. Campaign to urge dealers and farmers to take fertilizer early. Advise customers to order proper analyses in advance of the season. Fertilizer can be stored in the barn or in the ground.

3. Urge dealers to equip their operations with bulk-handling equipment and suggest they be sure to have a fast means for loading customers' orders during the rush season.

4. Make a dealer survey to determine grades and amounts that will be needed, and get an idea of what bag and bulk shipments will be required.

5. Order raw materials before you need them. This will assure you of having the right supplies, especially those materials that might become short during the spring.

6. Secure as much storage as possible for your bagged fertilizer. When the big push comes, some manufacturers bag and ship during the day, and run the plant at night. This can result in producing and shipping fertilizer that is not well-cured. Additional bag storage will help avoid this.

7. Check all your plant equipment and office supplies. Make necessary repairs well in advance of the season. A well-stocked plant with smooth-running machinery avoids costly breakdowns and tonnage-cutting slowdowns after the heavy shipping season starts.

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NITROGEN

There are many reasons why it pays to use ARCADIAN® Nitrogen in the manufacture of your mixed fertilizers. Here are only a few:

You are served by the leading producer of the most complete line of nitrogen products on the market. You have many different nitrogen solutions from which to select those best suited to your ammoniation methods and equipment. You get formulation assistance and manufacturing advice from the best-qualified technical service staff in the industry. You benefit from millions of tons of nitrogen experience and the enterprising research that originated nitrogen solutions. You get many important bonus values when you make ARCADIAN Nitrogen the N in your N-P-K.

ARCADIAN
Nitrogen Products

NITRANA® Nitrogen Solutions
URANA® Nitrogen Solutions
U-A-S® Nitrogen Solutions
N-dure® Solution
A-N-L® Nitrogen Fertilizer
Ammonium Nitrate
UREA 45 Nitrogen Fertilizer
Sulphate of Ammonia
American Nitrate of Soda

Allied Chemical

NITROGEN DIVISION
40 Rector St., New York 6, N. Y.

IMC Accepts a Major Responsibility

As the editors of Commercial Fertilizer Magazine have pointed out for a long, long time, the major weakness of our industry has been a serious gap between manufacturer and the farmer. The problem of communication has been there ever since the fertilizer manufacturer graduated from the shovel-and-wheelbarrow stage. There was plenty of molasses, but too much of it got lost being poured from one jug into another.

Now International Minerals & Chemical has built a program designed to carry the message all the way down the line to the Garcias who run our farms. Here is the story:

If you watch the newspapers from all over the nation as we do you will see small stories headed:

FERTILIZER MAKERS ATTEND SALES MEETING

These go on to say that forty-five salesmen of 19 fertilizer manufacturers are attending a two-day sales training session in a local hotel . . . being conducted by sales and marketing executives of IMC, a part of the customer service program of International Minerals & Chemical.

And the lists of companies represented reads like a roster of the best and livest concerns in our industry.

That is the second stage of what IMC calls its full orbit program. The first stage was education of its own people, plus the preparation of a most elaborate outfit of sales-aid material. This second stage is to get the facts and the aid material into the hands of fertilizer salesmen who go down the line to dealers and, presumably, to large-scale farmers.

President T. M. Ware, calling this a new corporate way of life for IMC, says it has already set a new standard of customer-supplier relationship. Marketing vice-president A. E. Cascino says the program in its six-month introductory stage exceeded expectations. And small wonder. Take a look at the organization and the solid merchandising program that stands behind the nine regional training meetings now in progress:

IMC salesmen introduced the program to more than 400 fertilizer manufacturers and distributed 8,000 of the six different specially prepared Full Orbit "how to" pamphlets. These books, based on an independent survey of fertilizer manufacturers to determine areas in which they needed and would welcome help, were written in industry language by experts on such subjects as market analysis, building and training a sales force, setting up effective dealer meetings, improving advertising effectiveness, transportation problems, and technical service.

Two new service books, "Using Credit Effectively" and "Insurance and Safety Programs" have been added to the Full Orbit library of pamphlets as part of the "second stage."

Enthusiasm generated during the last six months by the sales training books sparked the series of two-day sales meetings which started in Birmingham on January 5, and continued through February 3. Other cities at which meetings are scheduled or have been held are Shreveport, Louisiana; Tampa, Florida; Columbia, South Carolina; Baltimore (two meetings); Cincinnati, Des Moines, and Skokie, Illinois.

First reports from the series of sales training meetings indicate "great enthusiasm" by participants from 156 fertilizer companies.

Training teams for these meetings are made up of IMC sales and marketing executives and top salesmen from the field. They cover subjects chosen by the fertilizer companies themselves as of most importance to them in their selling efforts. The agenda includes such general topics as prospecting for new accounts, sales approach, overcoming objections, sale closings, general sales tools, selling quality, and effective use of selling time.

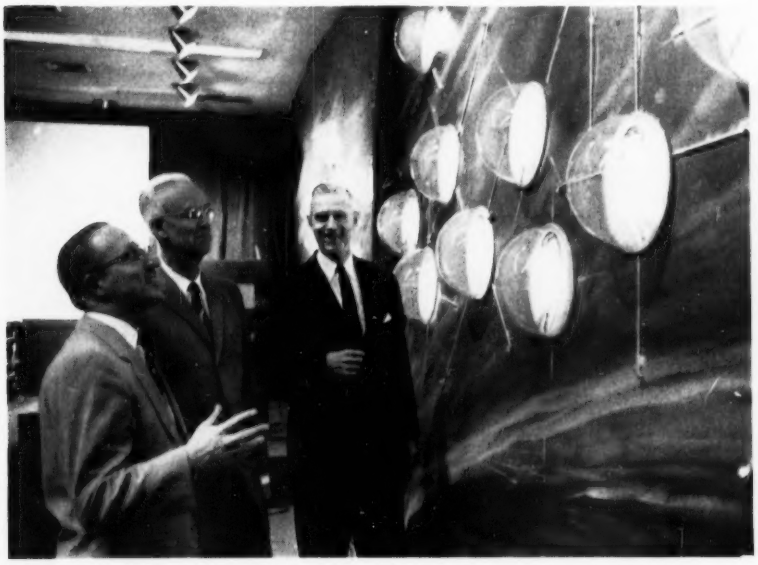
These are not new or original subjects, but taken as a whole they cover the major overall selling problems of fertilizer manufacturers.

The third new feature for Full Orbit which is still in the planning stage, was a direct result of closer customer-IMC ties created by the service campaign.

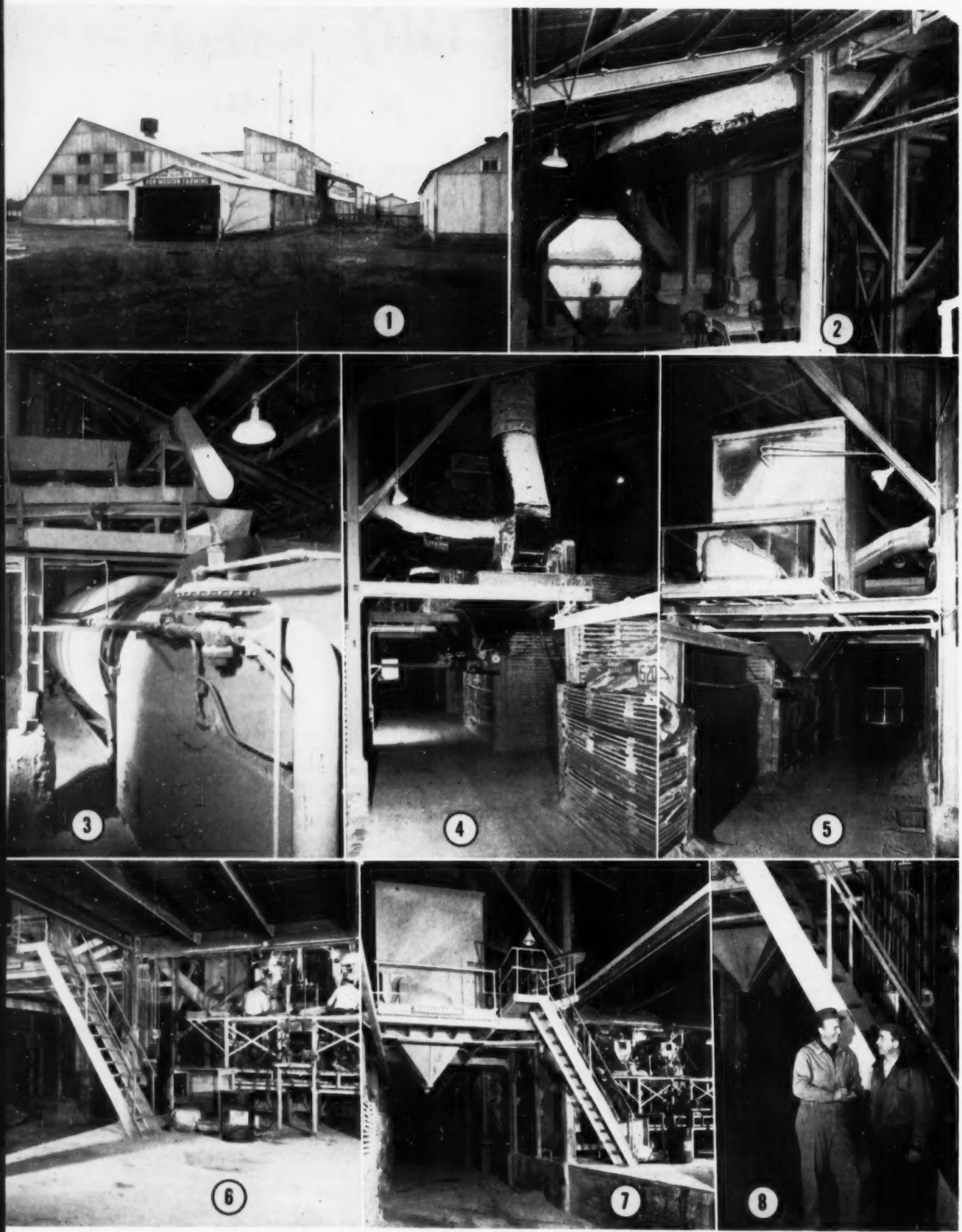
It calls for a two-day meeting at IMC's headquarters center in Skokie of representative fertilizer manufacturers with top IMC management and experts in the various fields of interest to the industry.

"This customer panel meeting,"

(Concluded on page 58)



'Far-away faces' under scrutiny here belong to salesmen of fertilizer ingredients for International Minerals & Chemical Corporation. Back-lighted caricatures in plastic domes represent satellites, part of decorating theme for IMC sales meeting to launch "second stage" of its Full Orbit Customer Service Program for fertilizer manufacturers. Observers are, left to right, A. E. Cascino, marketing vice president; George W. Moyers, vice president phosphate division, and Nelson C. White, vice president potash division. Highlight of meeting was announcement of plans for nine regional sales training meetings to be conducted by IMC for 350 salesmen from 156 fertilizer companies.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how IOWA FARM SUPPLY licked an acute DUST problem

Low headroom in some areas made the installation difficult, but IFS now has good dust control at dryer, bagging and bulk loading sections

At the recent Fertilizer Industry Round Table technical conference one of the subjects which appeared most frequently on the program—and one which stimulated questions and discussion each time it came up—was the problem of dust and fume control. A number of excellent papers were presented, and many interesting sidelights developed in the discussions that followed.

One of the plants which has coped longest with the dust menace that accompanies granulation is Iowa Farm Supply Company at Des Moines. This facility, an affiliate of Iowa Farm Bureau Federation, was the first commercial plant to install the type of granulating equipment that is now considered conventional in the fertilizer industry. At the 'guinea pig' IFS plant, the problem had reached acute dimensions, aggravated as it was by the low headroom in some sections of the building where dust conditions reached a high level of concentration.

Key to Pictures

←

1. Exterior view of the Iowa Farm Supply granulating plant at Des Moines.

2. Discharge end of rotary dryer shows hood and insulated ductwork that carries effluent gases to collector.

3. View from alongside furnace at input end of dryer.

4. Insulated duct from dryer discharge carries hot gases into back end of this five-compartment continuous automatic dust collector system; as limited headroom above and alongside dryer prevented installation of collector there, exhaust is piped to opposite side of plant; here collector is situated over aisleway. Ductwork in foreground carries air and steam through roof to exhaust stack. Suspended below collector is screw conveyor reclaiming particles for salvage.

5. This two-compartment collector is used to ventilate bulk loading station.

6. View of bagging unit with cloth-bag type dust collector alongside to ventilate this section.

7. View from aisle of bagging section and its two-compartment dust collector.

8. Russell Overton, plant superintendent, and Sid Bondurant, plant manager at Iowa Farm Supply, pictured on dock beside bagging operation.

When Iowa Farm Supply was in the process of some plant modification a couple of years ago, it was decided to replace the cyclone dust collectors with a type of unit that could increase the collection efficiency under the usual operating conditions there. This is a 'progress report' on their change.

Officials decided to use a cloth-filtration system for collection of dust from the exhaust of the new Renneburg 'DehydrO-Mat' dryer they were installing, and also decided to use the same type of units for air purification at the bagging and bulk loading stations.

The unit selected was a Wheelabrator five-compartment continuous automatic 'Dustube' collector, equipped with orlon filter bags for protection against the corrosive materials and against operating temperatures which reached as high as 275° F.

Automatic control instruments were provided to regulate exhaust gas temperature by modulating the quantity of fuel at the burner. The control unit setting is held at 250-260° F. to avoid overheating damage to bags, and to minimize danger of condensation in the collector.

As a further deterrent to condensation, the baghouse and all ductwork between the dryer and final discharge to the atmosphere were fully insulated. In addition, the baghouse is preheated before feed is turned into the dryer, and is purged with warm, dry air when the dryer is shut down. Under these conditions, no condensation difficulty has developed.

Analysis of the material recovered from the dust collection unit at the dryer showed that 98.5% of this salvaged product passes through a 100-mesh screen, and 82.1% passes through 325-mesh.

John Porter, director of IFS's Plant Food Division, reported at the end of a full year's operation that the system far exceeded management's expectations in operating efficiency. While some initial trouble was experienced due to the hygroscopic nature of the particles being recovered, he said that these problems had been overcome and no further difficulty was anticipated.

Plant Manager Sidney Bondurant says the new equipment has resulted in about a 10% increase in the salvageable material recovered from the dryer exhaust gases, increasing the over-all efficiency of collection from about 90% to 99-plus %. During normal operations, Mr. Bondurant states, about 1800 pounds of 'finished product' material (worth a nominal $50-60 a ton) is recovered and can normally be routed directly to bagging.

In addition, there seems to be no visible contamination coming from the plant's stack; the only discernable emission is the quickly-dissipating water-vapor cloud from the four tons of moisture extracted from the product passing through the dryer each hour of operation.

As two-compartment collectors installed at both the bagging unit and the bulk loading station were not subjected to inputs of hot, moisture-laden air, insulation and temperature control devices were unnecessary on these collectors. Recovery of solid 'fines' at these points has been calculated at about two percent of all material sent for bagging and bulk loading. This product also is fully salvageable, and can be bagged "as is" for sale as a pulverant product, or fed back in with the main stream of material going to these shipping sections.

All told, Iowa Farm Supply's production management has been favorably impressed with the operation of its new dust control system.

Wheelabrator Corporation reports that installation of similar units has been made at nine other fertilizer plants in the U.S. and Canada. F. S. Royster Guano Co. has one at its Madison, Wis. plant. The American Agricultural Chemical Co. has units in its plants at these locations: Baltimore, Md.; Saginaw, Mich.; Carteret, N. J.; Buffalo, N. Y.; Cairo and St. Bernard (Cincinnati), Ohio. Canadian Industries Ltd. has placed units in service at plants in Hamilton and Ingersoll, Ont.

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ALABAMA

Parker Fertilizer Co., Inc. is the new name of the firm at Sylacauga formerly operated as **Sylacauga Fertilizer Co.** President **Howard A. Parker** reports the change was effective January 1.

ARKANSAS

Van Buren Farmers Cooperative, Van Buren, is in construction with a new $500,000 mill to process soybeans for oil and for fertilizer and other use. It will have a 200 daily ton capacity, and should be in production in time for this year's soybean harvest. **Jack White** is manager.

CALIFORNIA

American Chemical Corp., the jointly owned concern created by **Stauffer** and **Richmond Oil,** has begun construction on its $7,500,000 petrochemical plant at Watson. Completion is scheduled for January next year.

DELAWARE

SunOlin Chemical is set to start in March construction of their $11,000,000 urea plant at North Claymont. President **James I. Harper** says it should be completed this year. The plant will be engineered by **N. W. Kellog,** assisted by **Montecatini,** whose Fauser-Montecatini process was arranged for just last month.

The concern, which is jointly owned by **Sun Oil** and **Olin Mathieson,** will buy ammonia from Sun, and sell its output through Olin Mathieson. Capacity is to be 73,000 annual tons. A $77,000 office building on the site will serve as headquarters during construction and later will house the SunOlin personnel.

FLORIDA

U.S. Phosphoric, division of **Tennessee Corporation,** is building a plant at East Tampa to produce "Di-Mon." This is a granular, modified diammonium phosphate, produced by a process developed in the US Phosphoric laboratories.

Made from wet process phosphoric, it is approximately 95% water soluble. 95% of granules are in the 6-16 mesh range, especially developed for mixing, granulation and for direct application. Analysis is 18-46-0.

The new plant is expected to be producing by April. The company has already put technical men in the field to help users apply this new product to their analyses. Some of these that have been produced succesfully are 5-20-20, 6-24-24, 10-20-20, 8-24-24, 15-15-15.

* * *

W. R. Grace & Co., Davison Chemical Division, has begun construction of a $500,000 addition to its present fertilizer plant at Ft. Pierce (reported to our readers last month).

The new equipment, to manufacture granular goods, will be the first source of such products in the Ft. Pierce area. The existing equipment turns out conventional ground fertilizers under the NACO trade name, and is operating at capacity.

The present plant dates from 1953, when it was built with the most modern facilities available to replace an installation which had been completely destroyed by fire.

Davison initiated its continuous process for granulation in 1953, and this is now operating in Davison plants at Baltimore, Md.; Alliance, Findlay and Columbus, Ohio; Lansing, Mich.; New Albany, Ind.; Joplin, Mo.; Perry, Iowa, and Tulsa, Okla.

IDAHO

Simplot Soilbuilders are already in process of replacing the warehouse at Caldwell that was razed by fire December 9, with $100,000 damage. A 60x120 foot steel building will be constructed, according to **Ralph Nyblad,** manager. The new structure will be on a railroad spur, extended for the purpose, which will allow direct loading.

* * *

Husky Oil Co. has announced that it will enter the manufacture of phosphate fertilizer this year, having acquired high-concentrate phosphate reserves in Idaho to supply for 70 years a plant using 150,000 annual tons.

* * *

Central Farmers Fertilizer, Georgetown, has shipped its first rock phosphate . . . to Farmers Chemical at Joplin, Mo.

* * *

Farmers Fertilizer Service, Inc., Nampa, has been formed by **John L.** and **James G. Yoder,** with **George E. Kellogg.** Capital stock, $5,000.

ILLINOIS

Mid-South Chemical is expanding the terminal at North Pekin to meet expanding need for their Big N anhydrous ammonia, according to **David H. Bradford, Jr.,** vice-president of the Memphis, Tenn. concern. A new terminal is also being built at Mt. Vernon, Ind., on the Ohio River.

* * *

Illini Phosphate Co. is planning a two story office building in Champaign, where their plant is located. They are also converting half of a former railroad roundhouse into a plant for additional fertilizer production.

KANSAS

Blue Valley Fertilizer, Marysville, closed its doors January 10. President **Wendell Glaspey** writes that this move is "a direct result of four years of the most damaging drought in Kansas history."

KENTUCKY

Burley Belt Plant Food Works, Inc., Lexington, has been sold to **Albert G. Clay,** a tobacco warehouseman; **Herbert Moore** also a tobacco warehouseman; and **Gilbert Nooe** who is also treasurer and general manager of **Ohio Valley Fertilizer Inc.,** Mayesville. The vendors, **Robert Terhune** and **Allen Peck** will remain in advisory and sales capacities.

MISSISSIPPI

Mississippi Federated Coops' new $750,000 granular fertilizer plant at Albany is in production and is expected to reach full production by Spring.

* * *

Coastal Chemical recently shipped from their Bayou Casette plant 325 tons of fertilizer to Honduras, the first export shipment of Mississippi-made goods. Central American farmers are being served by **Hemisphere International Corp.,** New Orleans.

MONTANA

Bunker Hill Co. has acquired 1,200 acres of phosphate property near Elliston that could be used to supply their proposed $10,000,000 triple superphosphate plant. They have land under option at Kennewick, Wash., which it is assumed locally will be the site for this project.

NORTH CAROLINA

Roseboro Fertilizer Company, Inc., has been chartered at Dunn with capital stock of $50,000 authorized. Incorporators are W. T. McLean, O. L. West, Jr., Nido L. Hamilton.

* * *

International Minerals and Chemical is drilling a series of test holes in Beaufort County, to help in evaluation of phosphate deposits in the area.

The announcement was the latest in a months-long effort by North Carolina state officials to get a phosphate mining operation underway in the coastal section of the state.

A year ago the state was ready to lease some of the 60,000 acres of submerged land it holds in Hyde and Beaufort counties to **Bear Creek Mining Co.,** a wholly-owned subsidiary of **Kennecott Copper** but the North Carolina Council of State asked for further bidding.

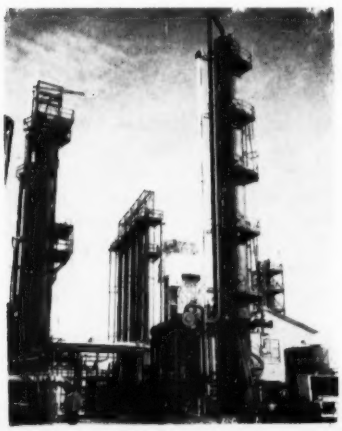
Shea Chemical Corp. (now **Hooker Chemical's** Phosphorus Division), asked last April for samples from phosphate beds in the two counties but the state was unable to supply them.

Bear Creek's action in turning down the lease threatened Beaufort County with the loss of a $25 million phosphate processing plant, which the firm has promised to build if granted the state lease.

NORTH DAKOTA

North Dakota Nitrogen Co., Riverdale, was reported here some months ago as being ready to build a $15,000,000 fertilizer plant, if they could secure the lignite, land and facilities at Garrison which were developed during the building of Garrison Dam. The district engineer has been given authority to negotiate sales of the 2,000,000 ton lignite pile, and to lease a railroad spur and the land on which the plant would be built.

This view of Spencer Chemical Company's Henderson Works shows some of the equipment which has been added for the production of urea. Spencer unveiled its new 100-ton-per-day urea plant there recently to fertilizer mixers at a "Ura-Greeen" show. The new plant is equipped to produce liquid urea for "Ura-Greeen" direct application solutions and for "Spensol" ammoniating solutions. Prilled urea will also be produced.



TENNESSEE

Oolite Minerals has leased a tract near Cumberland City on which they are building a plant to be in operation by the first of next month. Here they will process magnesium from a tract nearby, and oolitic material from their Dover operation. The Cumberland plant is said to be listed at $250,000 and they are said to plan other plants at Anderson, Dover and Stewart.

UTAH

Flintkote Co. have announced plans for a plant at Salt Lake City for the production of lime to cost more than $1,000,000. This will increase their string of international manufacturing operations to 65 plants, located in the US, Canada, England and France.

VIRGINIA

E. A. Brothers Fertilizer Co., Inc. farm supplies, has been incorporated, F. F. Jeter, agent, at Norfolk, 1100 Royster Bldg., for $50,000.

WYOMING

Fremont Minerals has begun operations at its $750,000 plant at Riverton, which is rated at 100 daily tons of sulphuric acid. Sulphur comes from local recovery source and it is processed by the contact method.

BRAZIL

Nitrogenio S. A. Industria Brasileira de Produtos Quimicos e Fertilizantes, Sao Paulo plans a $15,000,000 plant to produce nitrogenous fertilizers from natural gas . . . 120 daily tons of ammonia, 150 of nitric acid, 180 of nitro-chalk, 150 of urea. Construction depends upon completion of financing, and the Department of Commerce Investment Division has a prospectus for interested investors.

CANADA

Gypsum, Lime & Alabastine, Canada Ltd., Beachville, Ont., has begun production of pulverized limestone at the $350,000 plant there.

DOMINICAN REPUBLIC

Government services have set up $150,000 to produce 5 daily tons of nitric acid. They already operate a plant turning out 12½ daily tons of sulphuric acid.

EGYPT

Societe Egyptienne des Engrais et Produits Chimiques is doubling fertilizer capacity to 375,000 annual tons; calcium nitrate to 220,000 annual tons, and to produce Egypt's first ammonium sulfate this year out of sulphur from the Red Sea.

INDONESIA

Government has signed a package deal with USSR which includes a 100,000 annual ton superphosphate plant, along with some steel mills . . . and "no strings attached."

ISRAEL

Fertilizers and Chemicals Ltd., Haifa, which should soon become a completely private operation now produces seven basic fertilizer elements and five basic chemicals. The Government still owns 65%. **Hevrat Ovdim,** Isreali Labor's holding company is planning an $11,000,000 investment in an elemental phosphorus plant in Dimona. A British firm will add $700,000 to that.

MEXICO

Guanos y Fertilizantes, will build a $12,000,000 sulphuric plant at Coatzacoalcos, Venezuela, which will take advantage of the byproducts of Pemex, Mexico's nationalized sulphur plant.

PAKISTAN

The PIDC fertilizer plant near Sylhet is under way. Japanese engineers are on the site, quarters are being built for officers and staff of the plant, roads are being laid. The first consignment of equipment was due in last month. The Planning Commission has approved a gas-fired power house as the source in primary power, and a gas line from the Sylhet fields is being surveyed. The plant which is due on the line in 1961 will cost over all Rs. 22.46 crore, and should produce 257,000 annual tons.

UGANDA

Uganda Development Corp. estimates that 400,000 annual tons of phosphates can be exported annually as a result of their plan to open up the phosphate deposits at Sukulu.

changes

Last month we ran the following item, but a printer's error made it incorrect. Here is the correct item:

Nitroform Agricultural Chemical Company has appointed **Pacific Agro Company** to handle sales for Oregon, Washington and Alaska.

The arrangement was announced jointly in October by **James M. O'Donnell,** president of Nitroform, and **Lee Fryer,** fertilizer manager for Pacific Agro firm.

Said Mr. O'Donnell: "We are especially happy to enter the Northwest market and the new 49th State of Alaska."

* * *

Dowling Bag Company have established in Savannah, Ga. a textile bag manufacturing plant and sales office. They have located in the buildings formerly occupied by Mente & Co. and Fulton Bag & Cotton Mills, and have retained operating personnel that formerly worked with these two big producers, including **O. Frank Littlefield** as manager, who was 38 years with Mente and Fulton, the last 20 years as manager. They went into operation last month.

Littlefield

Dowling bag was established in Valdosta in 1945, and will continue to serve the trade from there, as well as from Savannah. Officers are **James L. Dowling,** president; **M. A. Drumheller,** vice-president; **A. R. Groover,** secretary-treasurer. They produce a full line of burlap, cotton and open mesh bags, burlap tubing and nursery squares, tobacco and cotton picking sheets.

* * *

International Minerals & Chemical Corporation began operation January 1 of a new lawn and garden department in its plant food division.

John D. Zigler, general manager of the division, said the department will concentrate on promotion of a new lawn fertilizer called **Thrive,** which uses a unique slow-release feature to provide balanced and "metered" year-round feeding.

The product was successfully market-tested last spring in Rockford, South Bend, and Fort Wayne. It will be introduced this spring to expanded mid-western markets, including the greater Chicago area and Milwaukee.

Jack G. Eisinger, formerly Chicago district manager for the hardware division of Black and Decker, with 18 years' experience in the field, has joined IMC to be sales manager for the new department.

He will head up a sales force which will operate independently of the division's other departments. Other fertilizers to be featured by the new unit include **Fertilis** and **Mello-Green.**

* * *

Sinclair Chemicals, Inc., name has been changed to **Sinclair Petrochemicals, Inc.,** John A. Scott, president, has announced. All personnel, offices and operations remain unchanged. Sinclair Petrochemicals is a wholly owned subsidiary of Sinclair Oil Corporation.

* * *

Phillips Petroleum Company's new foreign sales and development department will be headquartered in New York City with **John Getgood** as manager, according to **K. S. Adams,** chairman, and **Paul Endacott,** president of Phillips. Mr. Getgood was general sales manager of the company's sales department prior to his promotion to the new position.

The new department ultimately will be responsible outside of the United States and Canada for the sales of all Phillips products, patent licenses and technical services, the purchase and resale of petroleum products, and the development of manufacturing, distribution and sales projects.

* * *

Greater Wyoming Mineral Corp. of Thermopolis, Wyo., has purchased the **W. H. Woodruff** warehouses and packing plant at Basin and will convert the certified seed facilities into a quarter million dollar alfalfa pelleting plant and soil conditioner blending and packaging operation to handle soil conditioner minerals mined and milled there.

The Basin plant also will be used to package and blend the soil conditioner milled at Thermopolis. Greater Wyoming Mineral Corp. has let a contract for the construction of a mill to grind the trace minerals deposits on their local properties.

E. W. Kinghorn, who was associated with the Woodruff firm for 26 years, will be plant superintendent of the new enterprise. He is also a stockholder and director of Greater Wyoming Mineral Corp.

Negotiations were completed Jan. 15 for the purchase of **Deep-Root Fertilizers, Inc.,** Olathe, Kansas, by **The American Agricultural Chemical Company,** The announcement was made in New York by **C. M. Powell,** president of the A.A.C. Company.

The plant, which will offer Agrico fertilizers to the eastern Kansas-western Missouri area, is the first Agrico plant west of the Missouri River; other plants in the area are located at Humboldt, Iowa, Fulton, Illinois, Danville, and East St. Louis, Illinois. There are 37 Agrico manufacturing plants in all.

In announcing the purchase, Mr. Powell pointed out that users of Deep-Root fertilizers will benefit from the extensive research, manufacturing and sales experience of the A.A.C. Company.

The American Agricultural Chemical Company's recent expansion and acquisitions have resulted in important changes in organization according to **W. J. Turbeville,** vice president in charge of fertilizer sales.

Beales

To aid in the efficient operation of the Company's growing manufacturing activities, three sales divisions have been created.

W. L. Beales, former manager of Agrico's Saginaw, Mich. branch, will become manager of the Northeast sales division, comprising Agrico's offices at Baltimore, Md.; Buffalo and Three Rivers, N. Y.; Carteret, N. J.; North Weymouth, Mass.; and in Canada. Mr. Beales' headquarters will be in New York.

C. R. Clemons, former manager at Agrico's Buffalo, N. Y. branch, will become manager of the Mid-

Clemons **Engle**

Southern Sales Division, comprising Agrico's plant at Alexandria and Norfolk, Va.; Greensboro and Henderson, N. C.; Spartanburg, Charleston and Columbia, S. C.; and Savannah, Ga. His headquarters will be at Greensboro, N. C.

J. W. Engle, former manager of

For uniformly conditioned mixed goods, use

Du Pont UAL-S

Here's how it works . . .

New Du Pont UAL-S permits you to take advantage of the well-known conditioning effect of sulfates in fertilizers. A small amount of ammonium sulfate added in a finely dispersed form as in UAL-S is equivalent to a much larger amount added dry to the mixture . . . ammonium sulfate means better, more uniform conditioning. All of your fertilizers will benefit from nitrogen derived from UAL-S, because it combines two efficient forms of nitrogen with ammonium sulfate to provide added sulfur . . . an essential plant nutrient with recognized agronomic value.

Regular mixtures cure well with UAL-S, are free-flowing and resist caking. In granular mixtures, UAL-S aids in producing good yields of hard, round, firm granules that store and distribute well. UAL-S is non-corrosive to fertilizer manufacturing equipment, including mild steel and aluminum, and it's safe—handles at moderate pressure, and there's no danger of flash fires.

Du Pont specialists can give you at-the-plant advice on proper use of UAL-S in your fertilizer mixtures. They stand ready to assist you in profitably formulating mixtures containing UAL-S. For further information on UAL-S, fill out and mail the coupon.

PROPERTIES OF UAL-S

Nitrogen Content	42.5%
Freezing Point	20°F.
Pressure	15 psi at 60°F.
Specific Gravity	1.13
Fixed to Free Ratio	.9 to 1.0

Composition: Parts/100

Urea	38.8
Ammonium Sulfate	10
Ammonia	27.1
Water	15.1
CO_2	9.0

Du Pont UAL solutions in mixed fertilizers have helped American farmers grow better crops for 25 years.

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Agrico's East St. Louis branch will become manager of the Western Sales Division, comprising Agrico's offices at Danville, East St. Louis, and Fulton, Illinois; Seymour, Indiana; Humboldt, Iowa; and Olathe, Kansas. His headquarters will be at St. Louis.

* * *

Lakeshore Materials Handling Company, a division of Lakeshore Machinery & Supply Co., with headquarters in Grand Rapids and additional sales and service facilities in Muskegon, have been named exclusive franchise representative for **Yale** industrial lift trucks and tractor shovels in Western Michigan.

Kentucky Indicts for Salt Water Pollution

Criminal action has been taken by Kentucky's water pollution control commission against 316 oil producers and land owners, who are accused of polluting streams with salt water. They had 30 days to find ways of disposing of this salt water, and apparently could not find a way.

Salt Water to Fresh

Carrier Corp. is building a pilot plant to convert salt water to fresh by a direct-freeze process. This is a Government project,—looking forward, no doubt, to the day when the water table has gone down to perilously low levels.

—of This and That . . . .

——Norfolk, Va. lays claim to being the nation's largest single producer of mixed fertilizers, although yielding a slight edge to Baltimore in output of superphosphate. Some 14 mixing plants (including three granulating and one pelletizing) in the Norfolk-South Norfolk-Portsmouth center employ more than two thousand workers in the peak season, and claim to contribute about five percent of the country's mixed goods tonnage. Of the fourteen firms involved, seven are headquartered in the city, and four of these are multi-plant operators with branch and subsidiary operations scattered through the Eastern and Central U.S.

——Also in Virginia, the state-owned lime-grinding plant at Staunton reports a 20% jump in output of agricultural limestone during 1958. The year's final tally of more than 62,800 tons tops any previous output since 1953.

——*New Fertilizer Use*: In Maryland, Dr. James Shanks at the Univ. of Maryland Extension Service has recommended that city residents try garden fertilizer instead of salt to melt icy walks the next time it snows. It seems every spring complaints are received about lawns that are damaged by salt which has washed onto the grass from the sidewalks. So, since garden fertilizer contains salts that lower the freezing point of water (creating the same melting effect that the usual salt causes for icy sidewalks) and when the material is washed onto the ground, it will benefit grass instead of burning it. Moreover, it is slightly less difficult than salt for a person to walk on, giving a rougher surface for the feet on the ice.

——The obituary of Thomas Garland Tinsley of Baltimore who died Dec. 29 at age 89 revealed that he was president of Tennessee Chemical Co., a fertilizer business which he and his father organized before moving from Virginia to Baltimore in 1913. The company was later sold to Armour Fertilizer Works, as old timers may recall. Mr. Tinsley was born in Hanover County, Va., at Totomoi, a property which had been a crown grant to his family in 1688.

——Consumers Fertilizer Company, installing a plant at Henderson to make organic and chemical mixes for marketing in the east Texas area, carried out a neat publicity stunt in December. As remodeling of the old oil mill plant which will house their facilities was not quite complete when the new equipment was delivered, officials of th firm placed the machinery on display at a site just a few steps off the public square.

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PHOSPHATE PRODUCTION
No other process begins to compare with *way-ahead* Sackett SUPER FLO in making normal, fortified and triple super-phosphates of premium quality at *way lower* cost.

MIXED GOODS MANUFACTURE
Your investment in the latest Sackett Methods of producing conventional fertilizers is *guaranteed* to pay handsome returns. We are anxious to prove it.

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Step ahead of competition by entrusting your fertilizer expansion and modernization facility programs to our care. Many of the most forward-thinking fertilizer producers are glad they did.

GRANULAR FERTILIZER
Sackett Equipment leads the field in Granular Production.
The names of the fertilizer companies who have selected Sackett Granulating Processes above all others, read like a "Who's Who in Industry."

NEW PLANTS
Invest your dollars wisely by having Sackett build your new plant. We do the whole job . . . from the inception stage thru building construction and equipment fabrication to operating plant. See us for guaranteed results.

There is nothing that appeals to a man's reason more than plain facts. And, one plain fact is this . . . you can help yourself to bigger profits by resolving ***now*** to replace wasteful obsolete plant equipment with the latest rock-bottom cost methods as exemplified in Sackett Production Processes and Materials Handling Equipment. Why not start the ball rolling by writing or phoning us today?

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Architects and *Manufacturing* Engineers to the Fertilizer Industry Since 1897.

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PEOPLE in the Industry

SMITH A.C.C.

The Smith Agricultural Chemical Company announces the retirement of **Nelson T. White** as executive vice president. Mr. White joined them in 1922 and became general sales manager in 1945. **Marshall A. Smith** succeeds him as general sales manager. **Raymond W. Hunt** and **Hartl W. Lucks** were named sales managers, reporting to Mr. Smith.

At the annual meeting on January 19 the following officers were elected: **William F. Farley,** president; **Marshall A. Smith,** vice president; **Carl E. Veth,** secretary; **C. S. Schmelzer,** treasurer; **Earl F. Cline,** vice president; **Hartl W. Lucks,** vice president; **George L. Pelton,** asst. secretary; **Joseph W. Sheeran,** asst. treasurer.

FEDERAL

J. Walter Harding has been elected controller of **Federal Chemical Company,** and was re-elected secretary of the company. He has been with the company eleven years and previously was traffic manager and manager of purchases. He succeeds **George W. Shields** who has been vice president and controller. Mr. Shields was re-elected a vice president.

COMMERCIAL SOLVENTS

Hugh H. Courtney, Jr. has joined the agricultural chemicals department of **Commercial Solvents Corporation** as a sales representative, it was announced by **Clyde T. Marshall,** department manager. He will make his headquarters at CSC's District Office, 550 Glenn Street, SW, Atlanta, Georgia.

Courtney

Mr. Courtney will service fertilizer manufacturers in north Georgia, central and eastern Tennessee, concentrating on sales of Hi-D solid ammonium nitrate, Dixsol nitrogen solutions, and other CSC nitrogen products.

Herbert Bromberg has joined CSC as a market analyst attached to the company's market development department, it was announced by **Dr. F. E. Dolian,** manager of the department.

AGRICO

C. W. Barbee, assistant agronomist at the Agrico laboratory at Detroit, Michigan, has been named agronomist for Agrico's new **Knoxville Fertilizer division,** according to **O. C. Leetun,** manager of the service division of **The American Agricultural Chemical Company.**

Barbee

George H. Walker, a member of the Agrico Cleveland sales organization has been named assistant manager at the Cleveland plant, according to an announcement by **W. J. Turbeville, Jr.,** vice president in charge of fertilizer sales.

PCA

R. R. Knill, who has been mine superintendent at **Potash Company of America** since June 1, 1945, has been appointed general superintendent for PCA. In addition to his duties at the Carlsbad, New Mexico, plant, he will also supervise their potassium sulphate operation at Dumas, Texas.

David Rice has been promoted to Carlsbad mine superintendent succeeding Mr. Knill.

MERCK

Edgar R. Marookian, D.V.M., has joined the staff of **Merck & Co., Inc.,** chemical division, as region technical specialist. Dr. Marookian will report to **Charles E. Wall,** region sales manager for agricultural products, who is located in the Merck St. Louis office. Dr. Marookian will headquarter in Dallas. His territory will include Texas, Arkansas, southern Illinois, Kansas, New Mexico, and Wyoming.

DORR-OLIVER

Dorr-Oliver Incorporated announces the election of **Henry J. Talbot** to the board of directors. The election of Mr. Talbot, managing director of **Dorr-Oliver Company Limited** in England, extends recognition of the growing stature of the parent company's nine wholly-owned subsidiaries in Canada and abroad. The move will afford greater opportunity for communication among D-O associates on matters of concern to the parent board of directors. Mr. Talbot first joined the D-O organization in 1929.

CHASE

The Chase Bag Company announced election of the following officers at a meeting of its board of directors on December 19:

E. K. Ludington

Elliot K. Ludington, Jr., elected Executive vice president. Mr. Ludington was formerly vice president in charge of the firm's paper bag Division.

Francis H. Ludington, Jr., elected Vice President and Treasurer, effective March 1, 1959, succeeding **Charles S. Sheldon,** who will retire on that date. Upon special request of the board, Mr. Sheldon will continue to serve the Company as a consultant on financial matters for the remainder of 1959. Mr. Ludington has been vice president in charge of Production.

F. H. Ludington

Ayers

Rue

Brock

W. N. Brock, formerly vice president and general sales manager, elected vice president—director of sales. **H. B. Rue,** formerly sales manager, succeeding Mr. Brock. **John A. Brewster,** elected vice president—director of West Coast operations. Mr. Brewster will also continue to function in his present capacity as manager of the branch in Portland, Oregon. **R. H. Ayers,** formerly sales manager of the firm's paper bag division, elected vice president—paper bag division, succeeding E. K. Ludington, Jr. **E. S. Elgin,** formerly sales manager of the specialty division, elected vice president—plastics division. **John A. Book,** elected vice president—director of industrial engineering and labor relations. Mr. Book was formerly director of labor relations.

HUDSON PULP & PAPER CORP.
MULTIWALL SACK

Guarantee

Effective . . . . . the Hudson Pulp & Paper Corp., 477 Madison Avenue, New York 22, New York warrants and guarantees to replace without cost in a future shipment or (at its option) to refund to the purchaser the cost of each and every Hudson Multiwall Sack which bursts, tears, splits, or otherwise fails in the course of packing and/or closing.

Get USE from every bag you buy

Only HUDSON guarantees Multiwalls ...and puts it in writing

FIELD REPORT

TO: B.D.

Re: [redacted]'s Order

Herewith [redacted]'s carload order. Looks like beginning of good volume from this account. Their P.A. really opened up when I showed him our Written Guarantee policy. Explained to him that every Hudson bag he pays for is guaranteed to be a bag he can use. Or we pay!

He'd never known anything like this before. Please be sure to include validated Guarantee Certificate with your confirmation. Also give him full details on our Design Service. He's interested.

Hudson Bags increase your sales — cut your costs!

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AMERICAN POTASH

Two major appointments in **American Potash & Chemical Corporation's** eastern sales department were

Dirksen **Kolb**

announced at Los Angeles company headquarters by **William J. F. Francis,** vice president in charge of sales:

A. J. Dirksen, formerly general sales manager of the industrial chemicals division, was appointed to Eastern general sales manager to be in charge of all Eastern area sales. Mr. Dirksen joined AP&C in 1953 as director of the market development department. Prior to this, he was with **Phillips Petroleum.**

E. M. Kolb, formerly general sales manager of the heavy chemicals division, was named assistant to the vice president and will continue to be in charge of the company's potash activities. In line with this, Mr. Kolb was elected to the board of directors of **American Potash Institute** in addition to his duties on the board of **Potash Export Association.**

PHILLIPS

Phillips Petroleum Company has promoted **G. L. Lory** to general sales manager according to K. S. Adams, chairman, and Paul Endacott, president, of Phillips. He succeeds John Getgood, advanced to manager of the company's new foreign sales and development department.

G. E. Glatfelder has been promoted to senior assistant sales manager in Phillips sales department, **G. J. Morrison** to an assistant sales manager position, and **J. E. Chisholm** to succeed Mr. Morrison as division sales manager at Atlanta, Ga.

SOUTHERN NITROGEN

Robert W. Schramm has joined **Southern Nitrogen Company, Inc.** in a new position of general manager of development it was announced by **John R. Riley, Jr.,** president. Mr. Schramm's work in his new post will be concerned with long-term corporate planning and the evaluation of new business opportunities. He will be stationed in the New York City offices of Southern Nitrogen and will report to **George V. Taylor,** vice president of sales.

GRACE

Stuart A. Campbell has joined **W. R. Grace & Co., Grace Chemical** division, Memphis, Tenn., as a sales representative. Mr. Campbell will sell all Grace products including Micro-Prilled Urea Feed Compound, Urea Prills, Technical Grade Crystal Urea and Anhydrous Ammonia. He will work out of Grace's Chicago office and will cover the following states: Illinois, Iowa, Indiana, Ohio, Michigan, Wisconsin, Minnesota, Nebraska, North Dakota and South Dakota.

MISSISSIPPI RIVER

Ronnie R. Wheat has joined the sales department of **Mississippi River Chemical Company** according to **John L. Sanders,** sales manager. Mr. Wheat will make his headquarters in Bowling Green, Kentucky. For the past eight years he has been working as a fertilizer salesman for two major fertilizer companies in Kentucky.

Wheat

MILLER PRODUCTS

Roy E. Miller, president of **Miller Products Company,** Portland, Oregon, announces the appointment of **Keith Sime** to the board of directors and his election as vice president in charge of sales effective January 15, 1959.

Sime

Mr. Sime served 16 years as Northwest district manager for **Chipman Chemical Company.**

A. J. (Jim) Overton is appointed assistant sales manager in charge of advertising and sales promotion. Mr. Overton has been with the company for seven years prior to which he was active in Eastern Washington and Idaho in the seed business.

ST. REGIS

St. Regis Paper Company announces the appointment of **Robert F. Callahan** as manager of its multiwall packaging division sales office at Kansas City, Missouri. **Frank H. Rendler,** who was manager of the division's Kansas City office has been transferred to its Chicago sales office.

George R. Stone has been appointed manager of the division's Los Angeles sales office. **Joseph A. Fioretti,** formerly sales engineer in the Eastern district, has been appointed to the multiwall packaging division general sales staff as materials handling specialist. **John H. Dively,** has been named manager of engineering of the division's new Southern sales district, with headquarters in Birmingham.

FREEPORT

Richard C. Wells has been elected an executive vice president of **Freeport Sulphur Company** by the board of directors, **Charles A. Wight,** president, announced.

Wells

Mr. Wells will continue as president of **National Potash Company,** a jointly owned subsidiary, which he has headed since its organization in 1955. The board also elected three other officers of the company. They are: **William B. Porterfield, Jr.,** assistant vice president, formerly vice president and sales manager of National Potash; **Palmer H. Evanson,** assistant controller; and **Robert M. McArthur, Jr.,** assistant controller.

ASHCRAFT-WILKINSON

Edward F. Kelley, Jr. has been appointed to the sales force of **Ashcraft-Wilkinson Co.,** according to an announcement by Vice President **Robert E. Ashcraft.** Mr. Kelley formerly served as operations analyst for **Virginia-Carolina Chemical Corp.** in Richmond.

STAUFFER

J. Basil Bowers has joined the sales development department, agricultural chemicals division, **Stauffer Chemical Company.** Prior to assuming his new position, Mr. Bowers was Head of the plant pathology department at Stauffer's agricultural research laboratories in Mountain View, Calif.

Henry E. Wessell has joined **Stauffer Chemical Company** as assistant director of the Market Development Department, headquartering in New York. He was formerly manager of staff services at **Virginia-Carolina Chemical Company.**

MONSANTO

Herbert Hoover Jr. was elected a member of the board of directors of **Monsanto Chemical Company** December 23. Mr. Hoover, a consulting engineer, served as Under Secretary of State from 1954 to 1957 and is the son of the 31st President.

NOW...ONE MIDWESTERN SOURCE FOR THREE BASIC FERTILIZER MATERIALS

With the addition of a phosphatic solution plant to its chemical complex at Tuscola, Illinois, U.S.I. can now supply a large area in the Midwest with a variety of fertilizer materials that will meet all your needs for these components:

PHOSPHORUS . . . in the form of Phosphatic Fertilizer Solution (wet process phosphoric acid, 54-55% P_2O_5). This is available from U.S.I.'s new plant which produces 30,000 tons/year of P_2O_5. This chemical frequently enables you to make your regular and special granular grades of fertilizer at lower cost . . . and to make higher analysis grades.

NITROGEN . . . available as anhydrous or aqua ammonia, plus 16 types of nitrogen solutions including urea types.

SULFURIC ACID . . . available in all concentrations including oleum, plus good spent acid of fertilizer quality. Plants, not only in Tuscola, but also in Sunflower, Kansas, and Dubuque, Iowa.

To help you make the most of these various products, U.S.I. Technical Service people are ready to work with you. The U.S.I. Engineer will help you trouble shoot, set up formulations, work with you on experimental runs, consult with you on equipment selection, and can also offer U.S.I.'s laboratory facilities for more intensive investigations.

For products or assistance from U.S.I. Technical Service Department, write Heavy Chemicals Sales.

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Division of National Distillers and Chemical Corp.
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Branches in principal cities

UNION SPECIAL MACHINE

Extensive moves in management sales personnel have just been announced by Union Special Machine Company. Marion O. Moulton, district manager at Atlanta, has been named assistant sales manager and will headquarter at Chicago; Larry M. Brown, manager Product Application Department, has been appointed manager of Technical Sales and to assist Mr. Moulton; Clarence L. Rosenquist goes to New York as district manager; William G. Booth, district manager at New York, moves to Atlanta as district manager there; and Merritt M. Ambrose becomes manager of the Product Application Department in Chicago. These general moves come as a part of Union Special's continuing and long range program aimed at greater sales volume and is intended to take full advantage of the ability, experience, and capacity of the men involved.

Moulton

Brown

Ambrose

Rosenquist

Booth

INTERNATIONAL MINERALS

International Minerals & Chemical announced appointment of two directors and a chemical research manager in its new Research, Engineering and Development Division.

H. Turner Loehr was named director of engineering, and **Lawrence A. Roe** director of development. **Walter Lincoln Hardy** will be manager of chemical research. The appointments were announced by **Dr. I. M. LeBaron,** vice president in charge of the division.

Directors of other departments in the new division are **Dr. M. B. Gillis,** Research, and **Dr. F. C. Kruger,** Mining and Exploration.

Harry E. Moxley has been named superintendent of the IM&C fertilizer plant at Tupelo, Mississippi, succeeding **T. L. Holland,** who has retired in accordance with the company's pension program after 33 years with IMC.

BRADLEY & BAKER

W. M. Bryan and **S. Winfield Hill** have been named sales representatives for **Bradley & Baker;** both are assigned to the firm's staff at Norfolk, Virginia.

Bryan

Hill

Formerly with **Virginia-Carolina Chemical** Corporation, Mr. Bryan will service the southern half of the state, residing in Dunn, N. C.

Mr. Hill will call on Bradley & Baker customers in Virginia and part of northern North Carolina. He was formerly with the **Chilean Nitrate Sales Corporation,** and resides in Richmond, Va.

BAUER

William M. McNeil, has been appointed general sales manager, industrial grinding division, by **The Bauer Brothers Company,** Springfield, Ohio.

From 1947 until joining Bauer in his new position, Mr. McNeil was with **Celotex** and **United States Gypsum** for over 30 years.

VAN WATERS & ROGERS

Appointment of **Gordon Gable** to the new post of assistant manager of the Portland branch of **Van Waters & Rogers, Inc.,** was announced by **Tom W. Moore,** vice president and Portland manager for that firm. Mr. Gable has been with the Van Waters organization since 1939.

GEIGY

Geigy Agricultural Chemicals, division of Geigy Chemical Corporation, announces that **Vernon E. Anderson** has joined the Geigy sales staff. Mr. Anderson will represent Geigy in the states of Wyoming, Colorado, Nebraska, Kansas and Missouri.

CRYSTAL CHEMICAL

Lyle Barndt has joined **Crystal Chemical Company** at South Sioux City, Nebr. as general manager, and will coordinate manufacture and distribution of the firm's pelletized fertilizers and the agricultural chemicals and farm equipment which they handle.

Barndt

Mr. Barndt was formerly manager of **Wisconsin Farmco Service Cooperative's** plant at Prairie du Chien for eight years, and prior to that was associated with **Tennessee Corporation.**

OREGON

Frank McKennon has been appointed Oregon Director of Agriculture, effective January 12th. Mr. McKennon has been with the Department of Agriculture for the past 23 years, over 15 years head of the Plant Industry Division, and is scheduled to retire on September 1, 1959.

He succeeds Robert J. Steward who becomes chief clerk of the legislative Joint Ways and Means Committee.

NATIONAL GRANGE

Charles B. Bowling, nationally-known authority on transportation problems relating to agriculture, has been retained as transportation consultant to the **National Grange,** according to Grange Master **Herschel D. Newsom.**

FIRST PACKAGING

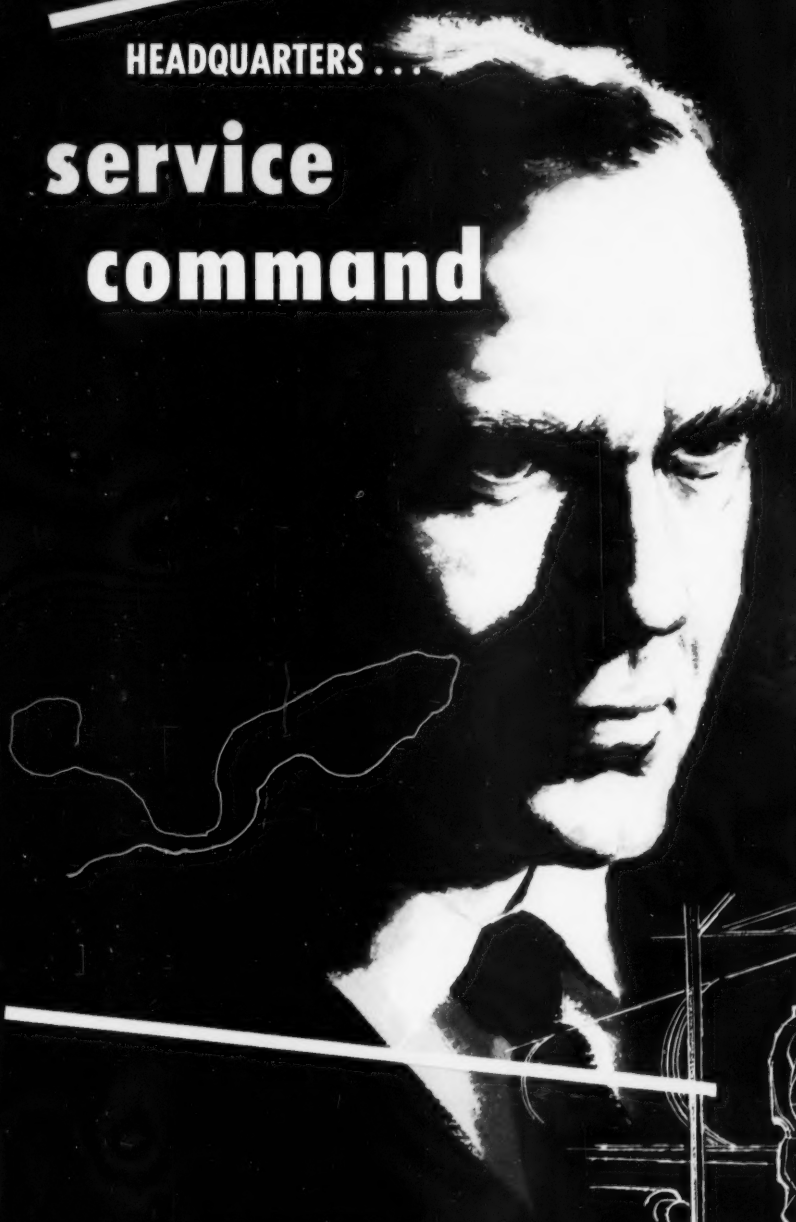
Richard A. Port of Monroe, Louisiana, has been named vice president and general manager of **First Packaging Corporation,** which is building a multiwall bag plant at Yazoo City, Miss. He assumed his new duties January 15. Announcement was made by **J. F. Babbit, Jr.,** vice president of First Mississippi Corporation, Jackson, Miss., cooperative-owned parent company of the new bag plant.

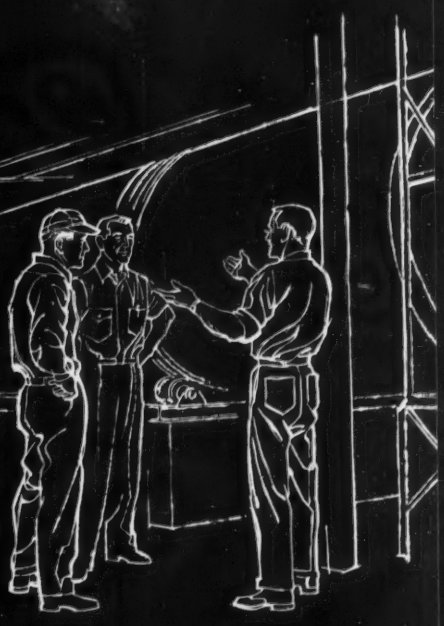
Mr. Port was vice president and general manager of the multi-wall division of **Negley Bag and Paper Company** at Monroe; when Negley was purchased by **Olin Mathieson Chemical Corporation** he became technical assistant to the sales manager. Prior to that he was connected with **International Paper Company** for sixteen years in production and sales.

INTERNATIONAL'S
FULL ORBIT
SERVICE

HEADQUARTERS . . .

service command





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Triple-super trouble shooter

International's Service Command helps you profit from our experience . . . complete and personalized service with no obligation . . . solves your problems in:

FORMULATION

We can help you select types of nitrogen solution and/or anhydrous ammonia; figure sulfuric acid requirements; choose type and particle size of potash; determine the proper combination of phosphoric acid and triple super to be used. Also International's technical trouble-shooters will work out problems concerning the use of steam and water in system . . . and recycle rates if granular product is being made. In short, International Minerals will help you through the full cycle of formulation problems.

CHOOSING EQUIPMENT

IMC personnel have worked with virtually every kind of equipment in the fertilizer industry. Because of this varied experience we are able to pass on to you information that will help you adapt or replace your present equipment at minimum cost.

PLANT LAYOUT

Our technical staff can help you plan plant layout changes. If you desire, our engineering department will evaluate the efficiency and cost factors of your plant layout and make recommendations that will save you money.

MATERIALS HANDLING

International Minerals processes millions of tons of materials a year. Result is valuable experience — that you can draw on — in reducing handling costs through correct use of conveyors, fork trucks, car loading equipment, etc.

STATISTICAL QUALITY CONTROL

Refer any formulation problem requiring computer applications to International's Industrial Engineering Staff. Our engineers also offer statistical quality control assistance when a process requires correction.

RESEARCH

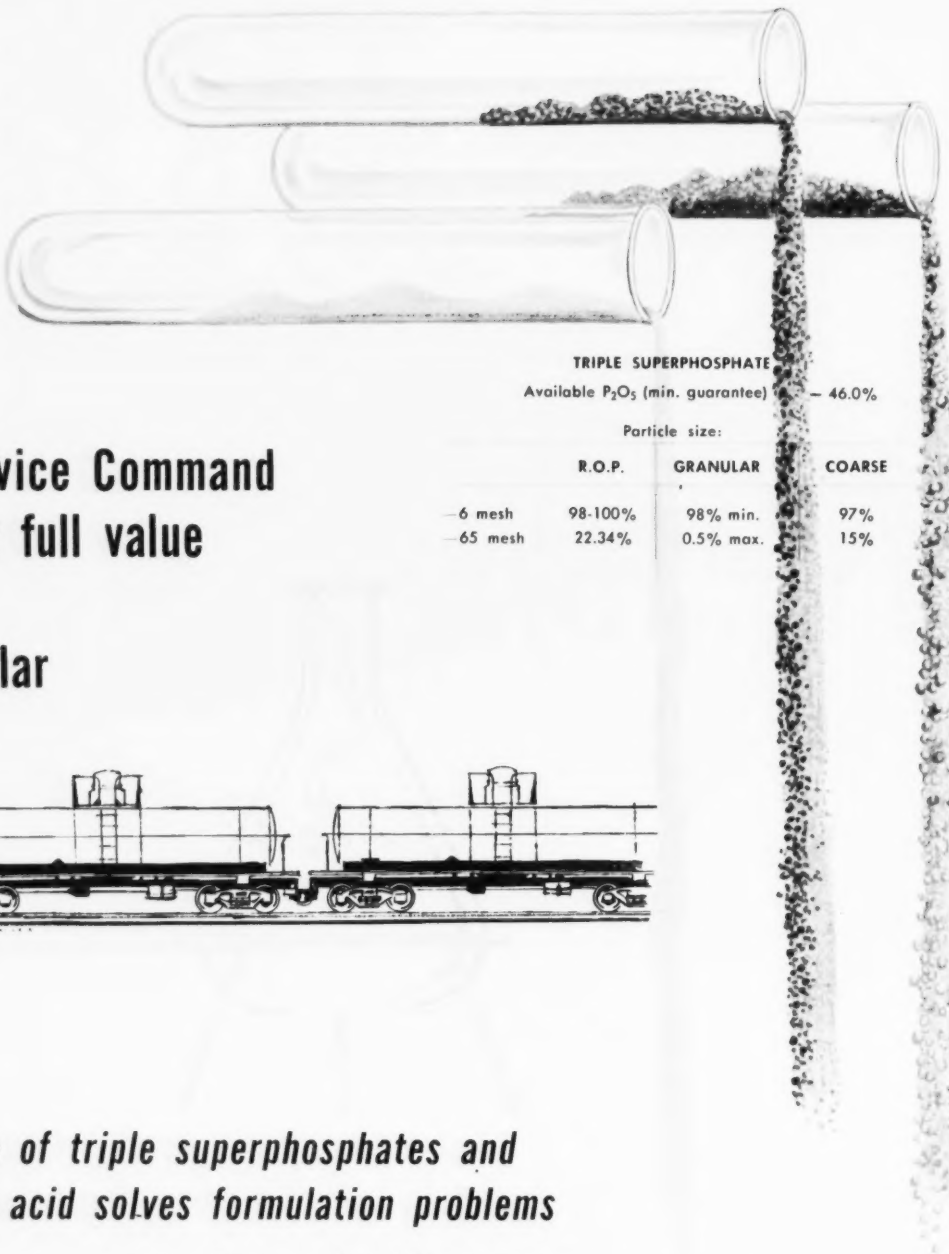
International's Research Division maintains facilities at Skokie, Ill., and Mulberry, Fla., to test the action of plant nutrients. *This information is yours.* International also sponsors many university and state experiment stations, the results of which are circulated by our technical staff. You can profit from IMC research into plant food requirements for local areas and from other phases of our complete research into fertilizer production, uses and results.

To avail yourself of our personalized Service Command help, call on International Minerals & Chemical Corporation, Administrative Center, Old Orchard Road, Skokie, Ill.

COARSE — International's coarse-textured Triple gives you the same excellent ammoniation batch after batch . . . promotes desirable agglomeration.

GRANULAR—International's granular Triple is non-crumbling, free-flowing, makes granulation easier. Sponge-like structure of granules facilitates ammoniation.

RUN-OF-PILE — International's fine-textured Triple provides uniform particle size, even density and proper moisture level that lets you ammoniate at higher rates, temperatures.



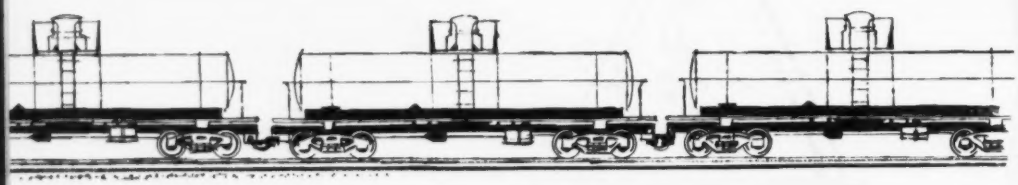
TRIPLE SUPERPHOSPHATE

Available P_2O_5 (min. guarantee) — 46.0%

Particle size:

	R.O.P.	GRANULAR	COARSE
—6 mesh	98-100%	98% min.	97%
—65 mesh	22.34%	0.5% max.	15%

Technical Service Command helps you get full value from your phosphate dollar



A complete line of triple superphosphates and phosphoric acid solves formulation problems

Now you can make International your dependable single source of all high-analysis phosphate ingredients. Benefit from International's three grades of top-quality triple superphosphate plus high purity 53%-55% phosphoric acid. And expert trouble-shooting assistance is yours — on call — from International's Service Command.

Creators of Living Minerals

MINERALS International CHEMICALS

PHOSPHATE DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Administrative Center: Skokie, Illinois

Awards

American Cyanamid's agricultural division presented Star Club awards to 15 outstanding salesmen at a banquet in New York where the divisional manager, **F. S. Washburn,** welcomed them. Others of Cyanamid's top brass present were **B. F. Bowman,** director of marketing; **A. B. Clow,** marketing vice-president; **C. D. Sivard,** assistant manager of the agricultural division.

Those honored were: **Floyd L. Bull,** Maine; **Joseph B. Spillman,** Maryland; **Stewart B. Howe,** New York; **Robert S. Moon,** Tennessee; **Joseph Nicholson,** Florida; **Norman A. Alton,** Georgia; **Richard T. Piercy,** Missouri; **Alfred M. Green,** Oklahoma; **John R. Baker,** Louisiana; **William H. Dearen,** Kentucky; **Carl F. Steinke,** Illinois; **Albert M. Brown,** Virginia; **Donald H. Lee,** Illinois; **Franklin Allen,** California; **Loren E. Fairlee,** Montana.

* * *

Canadian Industries Ltd. have awarded fellowships, 15 of which are valued at $2,000, two at $1200, to students at various Canadian universities. The 15 are for students seeking doctorates and the other two are for students working toward masters. Each award carries also a maintenance grant for the university in which the student is enrolled. In the past 18 years, 201 fellowships have been awarded by C-I-L, whose contributions in support of education generally run in excess of $100,000 a year.

* * *

Clemson Agricultural College this year established an award for agronomy achievement, which is sponsored by NPFI and includes a cash grant of $200. This was recently awarded to **William J. Weeks, Jr.** of Florence, S. C. and presented to him by NPFI's **Dr. S. L. Tisdale.**

* * *

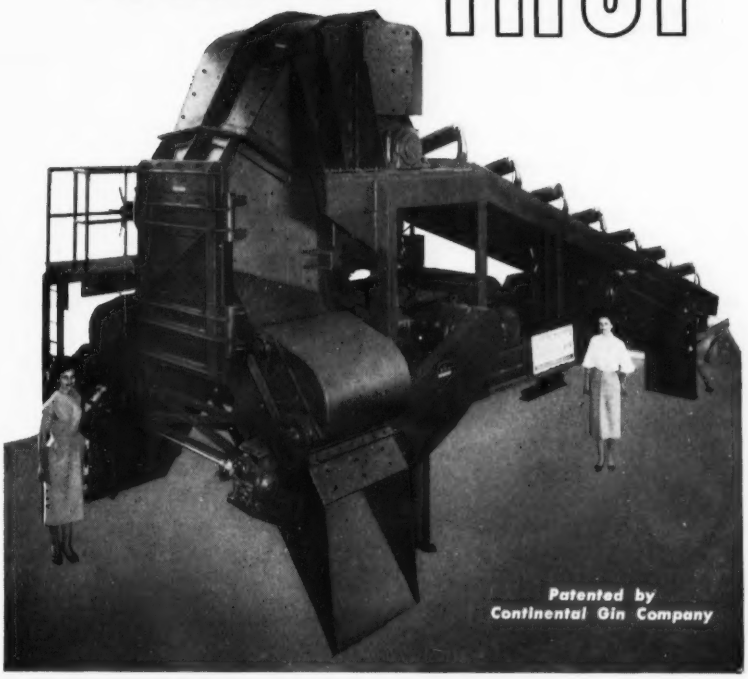
Colorado State University also has a $200 award sponsored by NPFI which this year was presented to **Albert Plant** of Colorado Springs by NPFI's **Dr. Richard B. Bahme.**

* * *

Quaker Oats offers $10,000 in prizes for technically minded people to enter a contest they inaugurated last month.

The top prize is $5,000 and is to be awarded for the most important commercial use for their newly developed product, levulinic acid—$CH_3COCH_2CH_2COOH$. All entries must be postmarked before March 1, and received before March 7. Mail to Quaker Oats, 345 Merchandise Mart, Chicago 54, Ill.

Another Continental "first"



Belt-Powered

Hydraulically Operated Tripper

Developed entirely by Continental, this patented hydraulic tripper was specifically designed for handling explosive, corrosive or similar materials where electric trolley wires and cable reels would present a hazard. Elimination of electrical equipment and mechanical reversing mechanisms, together with their required maintenance, make it an attractive installation for handling all bulk materials.

The unit, fully equipped with hydraulic controls, receives power from the conveyor belt and transmits this power through a hydraulic system to the tripper wheels. There are no clutches or friction drives to corrode during down time. The hydraulically operated spring-set brakes provide tripper positioning without creep, crawl, or accidental release.

Consult your nearest Continental office for complete information.

• *On any conveying or materials handling problem, consult your nearest Continental office.*

CGC

INDUSTRIAL DIVISION

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SULPHUR ONE OF THE FOUR STRONG PILLARS OF PROCESSING

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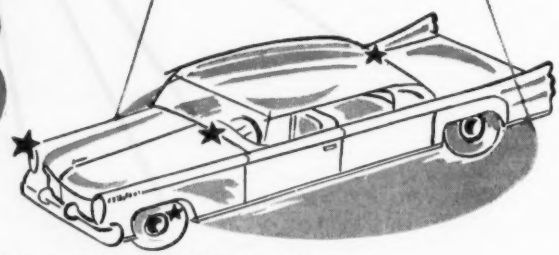
BUT PRESENT

35 POUNDS OF SULPHUR

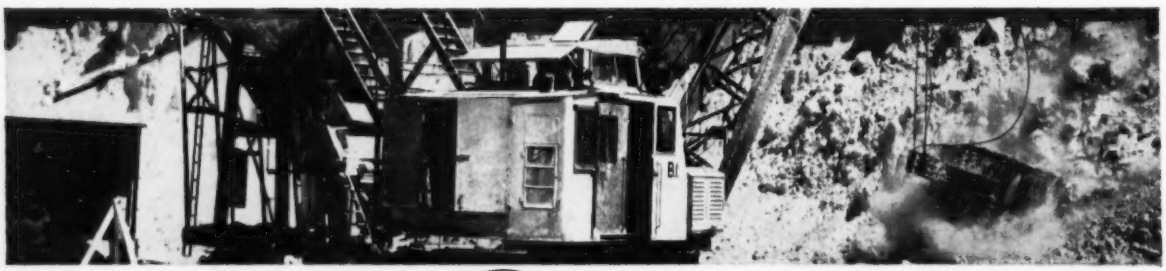
and derivatives help to produce the average automobile



Sulphur enters the automobile picture in two ways: directly and indirectly.

Sulphur, either as the elemental or as one or more derivatives, is used in the manufacture of rubber and rayon. Indirectly, it is used in processing the steel that forms the body. It is used in the plating operation on trim and fixtures. It is deliberately introduced into certain steels to provide better machining qualities.

Recognizing the importance of Sulphur to the basic industries such as the manufacture of automobiles, and to our ever-expanding economy generally, TGS is broadening its service: production, distribution and technical.



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The International Scene

AUSTRALIA

New Sulfuric Acid Unit

Shell Chemical (Australia) Pty. Ltd. has recently gotten into production with its new $2 million plant for extracting sulfuric acid from crude oil at Geelong, Victoria. Virtually all the acid produced will go to superphosphate manufacturers.

20 Superphosphate Producers

Superphosphate is manufactured in all six Australian states by eighteen firms operating 20 plants (Cresco Fertilizers operates three plants). Bulk of the capacity lies in the states of Victoria, South Australia and Western Australia.

Imported phosphate rock and locally-made acid are used. Acid is derived either from imported brimstone or from indigenous sulfur-bearing materials. Most recent statistics for a full crop-year available for the Commonwealth are for the 1956-57 year, when 1,975,000 tons of superphosphate were produced; this was the second highest production on record, being topped only by the 2,126,000 tons manufactured in the preceding year. 1956-57 production was depressed, however, by a carry-over of excessive inventories from the all-time high production of the preceding year.

Demand for superphosphate is principally during the summer and early autumn when it is used for top-dressing pastures and wheat land. Sales (and production) peaks usually occur about March. Output for the six-month period through February 1958 reached 1,033,000 tons (compared with 905,000 tons for the same period during the 1956-57 year), and sales for the first eight months of the 1957-58 year totalled 1,043,000 tons, six percent ahead of the corresponding period a year earlier. Predictions were for a banner year totalling nearly 2.2 million tons output by the time final figures were tallied for '57-'58.

Ammonium Sulfate Capacity Up

Demand for ammonium sulfate, principal nitrogen source in Australia, is concentrated in the spring and summer months when the material is applied to sugar, fruit (especially citrus) and vegetable crops. Demand has shown substantial gains throughout the current decade, and imports have recently had to be hiked to narrow the deficit between domestic output and crop requirements. Production, however, is inching ahead; the six months ended March 1958 showed gains in domestic output of about 5% to 58,300 tons. Major factor limiting output is a shortage of power at Electrolytic Zinc Company's plant at Risdon, Tasmania; if adequate power were available, this unit's output could be increased 'substantially.' Nevertheless, production for the 1958 calendar year is predicted to be a new record.

Prices

Prices of both superphosphate and ammonium sulfate were reduced throughout Australia during 1958. In the case of superphosphate, the decrease followed a drop in cost of imported sulfur, plus a decrease in freight costs. Responsible for the lowered price of ammonium sulfate was the increase in demand, which upped the import of this material; this lowered the average price to farmers, as the imported material is less expensive than that produced domestically.

Demand

Australian demand for all types of fertilizers, principally the superphosphate and ammonium sulfate outlined above, and potassium salts (all imported), will continue to increase with the more intensive use of farm and pasture lands and the use of more land for cultivation.

CHINA

Claims 89% Bigger Farm Yield in '58

Red China claims to have increased its farm output during 1958 by 89%, without the use of large quantities of chemical fertilizers. U. S. Department of Agriculture agrees that there are indications of a substantial gain in Chinese farm products, and cites favorable weather conditions and a great work effort in which peasants were joined by forced labor from every sector of the nation's economy.

However, USDA experts doubt that the yield increases are as dramatic as claimed by the Communist government; they point to an increase of some 11% in U.S. farm output for the year, and feel that a nation already intensively cultivating all arable land as China does could scarcely boost its total as much as claimed in a single year.

Analysts say Red China, determined to develop heavy industry, exports farm products to pay other countries for equipment and materials required to build industry. Domestic needs for more food and fiber may be partially denied to make such exports possible, they believe.

GREECE

5-Year, Billion-Dollar Plan

Greece's Premier Constantine Karamanlis said last month his government is drafting a 5-year improvement program costing about a billion dollars. Agriculture heads the list of beneficiaries of the plan, which also is designed to aid the nation's industrial, electric power, communications and tourist development.

INDIA

Expansion at Sindri

India's deputy minister of planning announced late in December that the new expansion in facilities at the government's huge Sindri fertilizer plant would be completed in the near future, and would be brought into immediate production.

Nangal Plant Due This Year

Difficulties holding up the 1200-daily-tons nitro-limestone plant at Nangal have been ironed out, and arrangements are under way for the erection of the manufacturing buildings. The facility, due onstream early next year at present estimates, has been delayed by lack of foreign exchange, plus the fact that it was linked up with a heavy-water project at the same site.

Rourkela and Neyveli Plants

Fertilizer manufacturing units at Rourkela and Neyveli are now predicted to come into production by the end of 1961. The schedule on the Rourkela facility has been delayed because it will depend on a large steel mill for its raw material, and the steel mill erection has been delayed by the foreign exchange situation.

Plant Announced for Durgapur

West Bengal's chief minister has announced at Calcutta that he completed a contract, on a recent trip to Western Europe and the U.S., for erection of a new fertilizer plant at Durgapur, which he expects to bring West Bengal nearer self-sufficiency in plant foods.

(Concluded on page 47)

with TRONA'S* new, specially-sized granular

POTASH

Quality fertilizer granulation begins with **Trona's** all-new, specially-sized granular muriate of potash. The carefully regulated and controlled screen size results in reduced segregation and uniformity of finished product. Whatever your mixing method—batch or ammoniation, **Trona's** new granular assures a quality fertilizer uniform in particle size.

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Producers of: **BORAX • POTASH • SODA ASH • SALT CAKE • LITHIUM • BROMINE • CHLORATES PERCHLORATES • MANGANESE DIOXIDE** *and other diversified chemicals for Industry and Agriculture*

PAKISTAN

Fertilizer Subsidy Restored

Pakistan's provincial agriculture department has acquired an additional 90,000 tons of fertilizers for distribution to cultivators throughout the province. A special campaign for sale of the goods is under way, and production loans will be granted deserving growers.

The present regime has partially restored the subsidy provided for farm purchases of fertilizers, and will guarantee to underwrite 40% of the cost of such purchases. Until last year the Central Government was subsidizing plant food purchases, having built up to a rate of 58% during the past financial year.

PIDC Training Workers

Pakistan Industrial Development Corporation has announced it will sponsor a one-year training plan for some 100 production workers to be employed at the nitrogenous fertilizer plant which Japan's Kobe Steel Works will erect for PIDC at Fenchuganj. Selected by merit exams in Karachi, Lahore and Dacca, the workers will go to Japan for training.

Experts will be brought from Japan to supervise the initial two years of operation at the plant, which is predicted to be completed in approximately three years. The new facility is calculated to make East Pakistan self-sufficient in fertilizers.

Multan Plant Nears Completion

West Pakistan also expects to become self-sufficient upon completion of the new 250,000-annual-ton ammonium sulfate plant under construction at Multan.

A recently-completed ammonium sulfate production unit at Daudkhel is already operating at about 60% of its 50,000 tons capacity, and plans are being considered for doubling this capacity.

SCOTLAND

SAI Sales Increase Credited to Fertilizers

Fertilizers were the main contribution to an increase in sales last year by Scottish Agricultural Industries, subsidiary of United Kingdom's giant Imperial Chemical Industries. Sales for the year ending last September 30 rose to $66.1 million from $63.6 million the preceding year, despite the firm's discontinuance of sales of agricultural implements and machinery. Bulk of the sales increase was credited to heavy capital investments during recent years in new plant facilities for fertilizer and feed production.

SOUTH AFRICA

Foskor Operation Expanding, Losses Being Reduced

Foskor's chairman reported to the seventh annual meeting that the management was confident about future operations of the national industry, Phosphate Development Corporation (Pty.) Ltd., better known as 'Foskor,' at Phalaborwa, Transvaal. Dr. F. J. du Troit reported that the past few years' operation have proved the practicability of producing a higher grade phosphate concentrate for manufacture of 19% superphosphate. Present installations had from the outset been considered nothing more than a large-scale pilot plant, capable of meeting no more than one-eighth of the Union of South Africa's present requirements.

The plant has thus far confined itself to exploitation of the richer, though smaller, Foskorite deposits, while large reserves of pyroxenite ores remain for future exploitation. Last year the average percentage recovery was raised from 53.9% to 63.6%, and further increases are being made during the current fiscal year.

Steps necessary for expansion of the operation are now being considered, in order to make production economical in terms of today's market values, and to assure the Union an adequate source of raw phosphates in times of crisis.

Consider Petrochemicals

Standard Oil Co. of South Africa has recently been in touch with organizations in the United Kingdom, Europe and the U.S., discussing the possibility of a petrochemical plant for South Africa.

SPAIN

Increases Potash Exports, Develops New Deposits

Potash production in Spain has declined slightly, according to reports made public recently, covering the 1957 output, but export tonnage rose sharply for the year. The gross 1957 tonnage of 1,416,000 metric tons (225,000 tons K_2O) was slightly below the 1,444,000 tons (234,000 tons K_2O) mined in 1956.

Exports, however, rose to 329,000 tons (60% K_2O) compared with 225,000 tons the preceding year. Leading export markets for Spanish potash were Belgium, Japan, United Kingdom, Norway, Italy, United States and Netherlands.

New deposits are being developed in Sierra del Perdon, Navarra Province. However, the future of Spain's potash exports is uncertain because of rising production costs.

WEST GERMANY

Nitrate Producers Gear For Export Competition

West German producers of nitrates and nitrate fertilizers, riding the crest of a sharply increased export market, are confident they can meet competition of other member countries of the European Economic Community.

They also believe domestic sales can be stepped up considerably. Use of nitrate fertilizer in West Germany now averages nearly 40 lb./acre, as compared with 46 lb./acre in Belgium and as much as 90 lb./acre in the Netherlands. German farmers can buy their nitrate fertilizers at more favorable prices than any other European farmers except those in the Netherlands.

During the 1957-58 year West German nitrate plants increased output by 163,000 tons to a record 1.2 million tons; bulk of this tonnage goes into fertilizers, with only 160,000 tons reaching other markets.

Despite heavy competition in most world markets, 1957-58 exports increased to 467,000 tons, some 100,000 tons more than the preceding year. In the past five years, the industry's export share has climbed from 30.4% to 45.2%.

Raymond To Produce New Stretchable Multiwalls

Raymond Bag Corporation will soon start production of multiwall bags made from a new patented stretchable paper.

J. R. Clements, president, Raymond Bag Corporation, stated that the parent company, Albemarle Paper Manufacturing Co. of Richmond, has been licensed by Clupak, Inc. of New York City, to install machinery and produce the new paper. The process will be placed in operation on machines at the Halifax Division in Roanoke Rapids.

Initial production of the new paper will be used in manufacture of multiwall bags at Raymond plants in Middletown, Ohio and Richmond. The new paper provides abnormally high stretch characteristics making an extremely tough but flexible multiwall package.

Another Clupak Machine Announced

West Virginia Pulp and Paper has one machine now turning out their stretchable paper. Now their president, David L. Luke, announces they are equipping a second machine for the purpose, thus increasing total capacity 150,000 annual tons. Both machines are in their Charleston, S. C. plant.

Ga. P.F.E.S. Re-Elects Dozier, Hears Soil Campaign Report

Georgia Plant Food Educational Society's annual meeting was held January 13 at the Continuing Education Center on the University of Georgia Campus at Athens. Some 350 industry representatives were on hand for the one-day meeting, which was followed the next day by the annual meeting of Georgia Section, American Society of Agronomy and Soil Science Society of America.

The Plant Food Educational Society elected officers for the new year and heard a well-planned program on expansion of Georgia's intensified soil fertility program.

G. L. Dozier of Central Georgia Fertilizer Co., Macon, was reelected president of the Society, and J. Fielding Reed, Southern manager for American Potash Institute, perennial secretary-treasurer, was also reelected. In addition, district vice presidents and directors for the four regions of the state were elected.

Northeast district vice president is J. B. Amos of Etheredge Guano Co., Augusta. District directors are: J. W. Walker, Waynesboro Fertilizer Co., Waynesboro; Jerome Dollar, F. S. Royster Guano Co., Macon; and Harry M. Arnold, Jr., H. M. Arnold Fertilizer Co., Monroe.

Northwest district vice president is Sam McGowan of The Southern Cotton Oil Division, Wesson Oil & Snowdrift Co., Cartersville. Directors for the district are: G. Allen Burson, Jr., Cotton Producers Assn., Atlanta; Frank L. Wooten, Armour Fertilizer Works, Atlanta; and W. A. Jackson, Tennessee Corp., East Point.

Southwest district vice president is W. W. Harley of Southern Fertilizer & Chemical Co., Savannah. Directors are: Tom Carr, Carr-Boatright, Sandersville; Charles B. Compton, Southern States Phosphate & Fertilizer Co., Savannah; and Cecil E. Carroll, Dublin Bonded Warehouse, Dublin.

Southwest district vice president is L. D. Hand of Pelham Phosphate Co., Pelham. District directors are: Paul Renfroe, Virginia-Carolina Chemical Co., Albany; R. G. Dozier, Jr., Stevens Industries, Dawson; and E. R. Culbertson, Georgia Lime-Rock Co., Albany.

W. H. Appleton of Potash Co. of America, Atlanta, immediate past president of the Society, continues as director-at-large for the state. Directors from the University are: C. C. Murray, dean of the College of Agriculture, George King, director of Experiment Stations, and W. A. Sutton, Extension Service director.

G. L. Dozier presided at the meeting, and W. A. Sutton welcomed the assembly to the campus. Fielding Reed, delivering the secretary-treasurer's report, outlined the activities and accomplishments of the Society during the past year. Membership has now reached 386, he reported, and new continuing projects have been added to the annual program. In addition to sponsorship of the cotton club and the grazing system and feed production contest, the Society is presenting awards to outstanding seniors at the college in agronomy and horticulture each year. Also during 1958, 25,000 soil-sample bags supplied by the PFES were distributed along with some soil sampling tools*, and the Society sponsored the lime and fertilizer short course for salesmen and agents at Athens.

*** Late last month National Plant Food Institute announced that it had obtained cooperation of the Georgia Bankers Association to make available eight soil-sampling tubes to the county agent in each of the 26 counties included in the expanded Soil Fertility program.**

"The Georgia Soil Fertility Program—Today" was the topic of R. L. Wehunt and P. J. Bergeaux, extension agronomists. Ralph Wehunt related effects of the intensive program carried on in six counties last year (see CF's February issue for Dr. Wehunt's message). Jim Bergeaux described plans for extending the campaign to 26 counties in all sections of the state.

Basically, the program is designed to acquaint farmers with their lime and fertilizer needs and to promote better farming practices of all kinds, he said, and preliminary results showed 60 to 70% of the farms needed liming badly . . . also low fertility was indicated in most samplings. Mr. Bergeaux told how the program is helping farmers to buy fertilizers of the proper P:K ratios. After selling businessmen on the program and soliciting their cooperation, he related, getting the plan across to the farmer is easier, and soil test samples collected in the 26 counties jumped from 8,351 in 1957 to 21,761 in 1958.

Otis Turner, Colquitt county farmer, told the audience what the farmer expects of the fertilizer industry in this program, and Extension Director Sutton told what the Extension service expects of the industry.

W. H. Smith, Jr., Bulloch County farmer, outlined the farmers' expectations of the Extension Service in the expanded program, while L. D. Hand told what the industry expects of the Service in this all-out campaign. He asked for recommendations in grades that can be manufactured by nearly all the plants in the state, based on a realistic cost-per-nutrient-unit, and for prompt handling of soil samples (four weeks maximum) with concise, simple reports.

Ralph Johnson, Extension agronomist and project leader, gave the industry representatives a projection into the future with a scheme for "The Georgia Soil Fertility Program—Tomorrow." He called for expansion of high-protein food production on grasslands with most efficient use of water, soil, fertilizer, seed and the dwindling supply of labor, and cited the rapidity with which most farmers now accept Extension recommendations (five years to establish 4-12-12, versus only one year for 5-10-15).

Corn is now a cash crop in Georgia, he stated, with annual demand exceeding production by more than 90,000,000 bushels. By 1965, he predicted that row crops would decline from the present 3.8 to 3.55 million acres, and that pastureland would increase from the current 7.5 to 10 million acres.

Citing plans for 1959 demonstrations (32 on corn, 12 on cotton, 32 on pastures and more than 100 on small crops), he revealed that the summer meetings would be stepped up from the four held in the past to six in 1959. In closing, Mr. Johnson urged fertilizer manufacturers to do more than sell plant foods: sell a complete farm practices program for best crop response to added fertilization.

That evening at the banquet, where G. L. Dozier again presided, W. H. Appleton made presentation of the awards. Pete Donaldson, president of Abraham Baldwin Agricultural College, was the featured speaker, with an excellent message under the caption "Food for Thought"; he was introduced by Experiment Stations Director George King.

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REDUCES BAG BREAKAGE 80%!

WONDERWALL is West Virginia's new multiwall bag. It's tougher because it's made from Clupak* kraft paper that stretches.

Mr. W. T. Wyman, Purchasing Director of the Peerless Cement Co., a Division of American Cement Corp., at Detroit, says:

"We checked the WONDERWALL for breakage in every step of our production—from the line to the dealer's warehouses. We were pleased to find that we were getting a reduction in breakage of about 80%, and we used about 600,000 WONDERWALLS in our operation in 1958.

"Our experience indicates that the strength of the WONDERWALL is such that with one ply less than standard kraft, it still is stronger."

Whether you pack fertilizer, feed, chemicals, sugar, or any other material, your product will travel safer in a WONDERWALL. Besides reducing breakage, the WONDERWALL packs faster, handles easier, and stacks firmly.

Best of all, a WONDERWALL *costs no more!*

Try this superior new multiwall . . . *you have so much to gain.* Order a trial shipment of 5000 WONDERWALLS on your next carload. Write Multiwall Bag Division, West Virginia Pulp and Paper Company, 230 Park Avenue, New York 17, N. Y.

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WV

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Midwest Industry-Agronomist Meeting Plans Complete

Fertilizer research reports, an experience summary on the crop production potentials program thus far, and a first-hand review of Soviet agriculture will be features of the 11th Annual Joint Meeting of Midwestern Agronomists and Fertilizer Representatives in Chicago, February 12-13, under the auspices of the Midwest Regional office of the National Plant Food Institute.

Another feature will be the premiere showing of a new Institute color film, "Cash In on Grass."

The two-day meeting will be held at the Edgewater Beach Hotel. Dr. W. P. Martin, Head of the University of Minnesota's Soil Department, will be Chairman and Dr. C. E. Smith, University of Missouri's Soils Department, will be co-Chairman.

The agronomists, industry representatives and visitors will be welcomed by Richard E. Bennett of Omaha, president of the Institute and Dr. Russell Coleman, NPFI executive vice president.

Opening at 1:00 p.m., Thursday, Feb. 12, the first day's program will include research reports by Dr. E. C. Doll, University of Kentucky; Dr. H. F. Rhoades, University of Nebraska; Dr. R. A. Young, North Dakota Agricultural College; and Dr. M. B. Russell, University of Illinois.

The "Crop Production Potentials" program review will be presented by Z. H. Beers, Midwest Regional director of the Institute. The three Midwest field representatives, John R. Guttay, Edward R. Schumann, and Arlan Woltemath, will discuss activities in their respective areas.

Leading off the Friday morning program will be the showing of "Cash In on Grass." Dr. Lewis B. Nelson, of USDA's Agricultural Research Service, will report on "The Challenge of Soviet Agriculture." He will be followed by F. E. Hartzler, Kansas State Teachers College, whose topic will be, "Is Profit a Bad Word?"

Two University of Minnesota specialists, Dr. Curtis J. Overdahl and Dr. George R. Blake, will report on "Minnesota's X-tra-Yield, X-tra-Profit Corn Growing Program" and "Soil Structure and Fertility Research."

The program will conclude with a report on "Agronomists 1959 Fertilizer Ratio and Grade Recommendations."

Prior to the meeting, research and extension agronomists from 13 Midwest States will hold a two-day conference.

A meeting of the Institute's Midwest Resarch Committee with the college men is slated for Tuesday evening, February 11.

New York City Chosen For Northeast Session

The Northeastern Industry Advisory Committee of National Plant Food Institute met last month and selected the Biltmore Hotel in New York City as the meeting place for the first annual Northeastern Fertilizer Conference, to be held September 24-25, and consisting of two one-half day sessions.

Non-members of NPFI are invited to attend the meeting and will be charged a $10.00 registration fee.

Hotel registration cards will be mailed to all member companies about the middle of June. The Biltmore is extending a special room rate to those who will be attending the conference.

The first one-half day program will be a report by the Institute staff, and the second half-day program will be developed by the Research and Education Committee.

The Committee also developed plans for an expanded forage crops promotion program in the Northeast.

This program, result of three previous sub-regional committee meetings held during November and December has an objective of improving efficiency of forage crop production throughout the Northeast.

Rocky Mountain Group Elects New Officers

New officers and directors elected to head the Rocky Mountain Plant Food Association for 1959: George Fleming, Farm Chemical Co., president; R. E. Monteith, Simplot Soilbuilders, vice president; John Heitz, Colorado Milling and Elevator Co., secretary-treasurer.

Directors include Randolph McMurtry, McMurtry Feed and Fertilizer Co.; Bob Pitcher, Colorado Plant Food; and Art Malowney, Phillips Petroleum Co.

Texas Conference Hears Of State's Fertilizer Potential

The Texas Fertilizer Conference attracted nearly 150 industry salesmen and college personnel to College Station January 6.

Potential fertilizer consumption on all Texas crops stands at 750,000 tons of nitrogen, 424,000 tons of available phosphate, and 120,000 tons of potash.

These figures, released at the conference are based on soil tests, field experiments and other statistical data compounded by Texas A & M agronomists.

The potential compares with actual use of 143,522 tons of nitrogen, 81,066 tons available phosphate, and 23,472 tons potash during 1957-58.

East Texas received special attention at the two sessions as Dr. A. G. Caldwell of A & M's Department of Agronomy pointed out that the average East Texas pasture produces not much more than a ton of low-quality forage per acre. He said that with proper fertilization it is capable of producing from three to five tons of high-quality forage per acre.

Dr. Robert L. Beacher, NPFI Southwestern regional director, presented the annual NPFI scholarship award to Boyd Proctor at ceremonies during the evening banquet.

Colorado Meeting Draws 150 to Ft. Collins

Soil moisture-fertility interaction, effects of fertilizer on quality of forage and hay, and fertilizer economics were stressed last month at the seventh annual Colorado Fertilizer Conference at Fort Collins.

The session was co-sponsored by Colorado State University and the Rocky Mountain Plant Food Association.

About 150 fertilizer dealers, producers' representatives, farmers and agricultural technologists attended the two-day conference.

Specific recommendations for placement and use of fertilizer on important Colorado crops also were discussed at the meeting.

Spencer Chemical Co. representatives presented a "flannel board" talk on the economics of corn production at the annual banquet.

Dr. Richard Bahme, NPFI Western regional director, represented the Institute at the conference and spoke on the subject, "Way To Get Farmers To Use Fertilizer at Most Profitable Rates."

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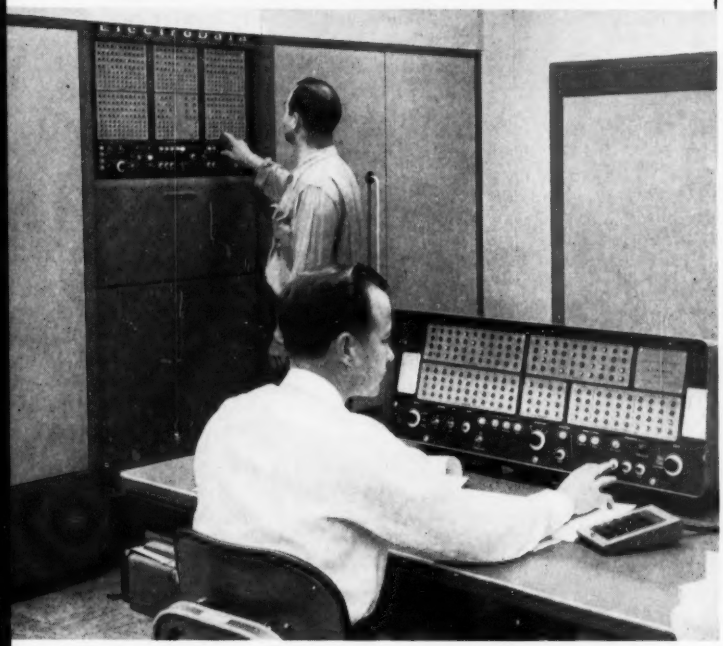
1 with Phillips *66* Electronic Computer Service



2 with the New Phillips *66* Pilot Plant

These men are saving Phillips mixer customers thousands of dollars. By employing the "brains" of the electronic computer formulating machine, they help fertilizer mixers arrive at more effective and lower cost formulations.

This extra individual service costs you nothing. All you do is furnish your Phillips *66* fertilizer field man the analysis of your materials, their cost, and the grades you wish to produce. Phillips technical service section applies these facts to production standards on heat, moisture, ammonia-holding capacity, nutrient value and weight. This information is then fed into the electronic computer which figures the most economical and effective formulation in a matter of seconds.

Call your nearest Phillips *66* office (listed below), for complete information on the ways Electronic Computer Service can help you save time and money.

Free services are available to you . . . from our new Phillips *66* Pilot Plant, to help you cut formulation costs and improve the quality of your products.

Continuous pilot plant studies are made on new and more economical formulations that save you money on your ingredients. Research and specific processing problems are translated into terms of commercial production . . . helping you eliminate the necessity of "hit or miss" experiments that consume costly manhours and materials.

The profit team . . . the new Phillips *66* Pilot Plant and Phillips *66* Electronic Computer Service . . . provides progressive, practical know-how that lets you cut manufacturing costs while turning out better quality products. These fine new services, plus high quality Phillips materials and fast, dependable deliveries will make it more than worth your while to deal with Phillips. Give us a call.

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Second Annual Conference Held in Arizona

The importance of the planned and scientific use of fertilizer to increase farm profits was the theme of the Second Annual Arizona Fertilizer Conference held on the University of Arizona campus January 21.

Fertilizer industry representatives from Arizona and nearby Western States, University and Agricultural Extension Service personnel, and growers were among those attending the one-day conference.

A progres report on new findings in soil fertility research in Arizona was presented by Dr. T. C. Tucker of the University's Department of Agricultural Chemistry and Soils. Other major speakers stressed the role of the agricultural Extension specialist in putting research information to work, the importance of the grower understanding the principles of fertilizer use economics, and improved methods of fertilizer usage.

A six member panel, moderated by E. O. Foster, Chairman of the Arizona Agricultural Chemicals Association's Soil Improvement Committee, discussed "Fertilizer Use Economics in Arizona," during the afternoon session.

Mr. Foster also was afternoon conference chairman. Chairman of the morning session was Robert Kerley, President of the Arizona Agricultural Chemicals Association.

The conference was sponsored by the University of Arizona in cooperation with the Soil Improvement Committee of the AACA, and National Plant Food Institute. The Institute was represented by W. R. Allstetter, vice president, and Dr. Richard B. Bahme, Western Regional director. Dr. Bahme spoke on the relative importance of basic and applied agricultural research, and Mr. Allstetter on the importance of fertilizer use economics.

obituaries

Foy Enlow, 52, manager Delta Fertilizer, Helena, Ark., died December 29 of a heart condition of the past several years.

Dr. R. E. Neidig, retired vice-president Balfour, Guthrie, died of a heart attack while on an auto trip in Western Mexico.

Thomas Garland Tinsley, 89, he and his father organized the Tennessee Chemical Co. which they later sold to Armour. He died at his home in Baltimore December 29.

elected

American Chemical Society has elected for 1959 **M. D. Sanders,** research director for Swift & Co. who becomes chairman of their division of fertilizer and soil chemistry, succeeding USDA's **Dr. Kenneth G. Clark.** TVA's **Travis P. Hignett** is chairman-elect of the division, and **John O. Hardesty** of USDA is the new secretary-treasurer.

* * *

The Synthetic Organic Chemical Manufacturers Association at its 37th annual meeting elected as president **Samuel G. Baker,** general manager of the duPont organic chemicals department.

* * *

Del-Mar-Va Peninsula Fertilizer Association at its December meeting elected new officers for the coming year. They moved up one step each, with the treasurer newly elected. They are: **Nash Strudwick,** Tilghman Fertilizer, president, succeeding **James R. Ford,** Warner W. Price Co.; **William Blank,** Worcester Fertilizer Co., vice-president; **John S. Neild, Jr.,** Dorchester Fertilizer, secretary; **Bond Truit,** Worcester Fertilizer, treasurer.

* * *

Alabama Soil Fertility Society held elections during its fourth annual meeting, and retained its president and secretary-treasurer: **Frank Boyd,** V-C Chemical, president; **M. H. Conner,** Eufaula Cotton Oil, and **A. T. Joiner,** V-C, new vice-presidents; **Charles W. Summerour,** American Potash Institute, secretary-treasurer. New directors for 1959-60 include **K. B. Maddox, T. W. Allen, Dick Bowden, George Williamson.** One year directors are **J. E. Dorland, J. C. Gentle, J. W. Morgan, J. Roy Pratt, Jr.**

meetings

Dealer workshops have been conducted at Cape Girardeau during January and into February. These were set up and handled jointly by Missouri's Soil Fertility and Plant Nutrition Council and the Missouri AES.

Washington Liquid Fertilizer Dealers Association was formed in December as 50 dealers operating in the State of Washington met at Pasco. The first directors meeting was held January 6, for discussion of legislative and trade problems. Directors are J. O. English, president; C. L. Cummings, vice-president; Sherman McGregor, secretary; Lyle Neff, treasurer; John Thomas, Edwin Andrus, Warren Wilkinson and Ray Whitcomb.

Lee County, S. C. kicked off its soil testing program at a dinner meeting. The project, directed by the S. C. AES is partly financed by a $2,500 grant from NPFI.

Southern Farm Forum gave leading Dixie farmers and others a good look at the future of Southern agriculture at the 12th annual meeting of the group January 22-23.

Pennsylvania Fertilizer and Lime Conference, will be held February 11-13 at the Nittany Lion Inn, University Park, Pa. It is planned jointly by the Pennsylvania Plant Food Educational Society and the Pennsylvania State University. Officers of the Society are president: Dr. Howard B. Sprague, Head, Department of Agronomy, Penn. State University; vice president: Murry C. McJunkin, Market Development, U. S. Steel Co.; secretary-treasurer: Rodger C. Smith, Head, Fertilizer Research, Eastern States Farmers' Exchange, Inc.

International Farmers Convention will be held in Jerusalem, Israel, April 5-16. For details, write Israel Tourist Office, 359 Fifth Ave., New York.

Idaho Dealers' Days have been arranged as follows: February 16, Caldwell; February 17, Twin Falls; February 18, Pocatello; February 19, Rexburg; February 25, Coeur D'Alene; February 26, Lewiston.

Western Washington Dealers' Day will be held at the N. W. Washington Experiment Station, Mt. Vernon, Tuesday Feb. 24th. The meeting will start at 1:30 P.M., lasting until 5 P.M. Then a banquet, followed by an evening program. Dick South and Todd Trembley are making arrangements.

Pacific Northwest annual convention: Now definitely fixed for October 14-16, at Yakima, Washington. Headquarters—the Chinook Hotel.

Pacific Northwest regional fertilizer conference: Winthrop Hotel, Tacoma, Washington, July 7-9.

NOTICE ANYTHING DIFFERENT ABOUT THESE MULTIWALLS ?

Bemis SINGLE GUSSET Multiwalls are being used by the Davison Chemical Company, Division of W. R. Grace & Company, Baltimore, Maryland. The single gusset bags have good stacking qualities. They palletize well, and the filled pallets are stacked three high. In addition, these new Bemis multiwalls give improved performance on the packer.

Yes, they are different.

For one thing, they are Bemis SINGLE GUSSET Sewn Valve Multiwalls . . . another Bemis *first*. (They stack so uniformly, you have to look closely to notice the single gusset construction.)

But the BIG differences are the ones you will see in the packing performance where you get uniform filling, steadier production and greater economy. Bemis SINGLE GUSSET Multiwalls provide these important time- and labor-saving benefits:

1. The flat tube side, opposite the valve, provides more room for the product flow during filling.

2. The additional space in the corner helps prevent blowout.

3. Fertilizer does not back up and clog the filler spout.

And still another important point—the additional usable space created by the flat tube corner often permits the use of a shorter bag, *which would save you money.*

General Offices—408 Pine Street, St. Louis 2—Sales Offices in Principal Cities

Equipment News Roundup . . . .

Horizontal Mixers

A new complete line of horizontal mixers is announced by Young Machinery Co. in a new 12 page bulletin giving complete dimensions for mixers up to 500 cubic feet working capacity, which illustrates various arrangements of ends, supports, agitators, shafts, glands, covers, inlets and discharges, gates and drives.

A complete mixer to your own specifications can be assembled on your drawing board. A check-list is included to insure proper selection of the desired mixer components.

For Bulletin F-1058, circle Number 1 on CF's Information Service card, page 55.

Lime & Fertilizer Spreader

Free literature on 'New Leader' Power Take-off Combination Lime and Fertilizer Spreaders has just been released by the Highway Equipment Company.

The manufacturer states that both models, the L-19s and the L-17s, are positive-feed, self-unloading spreaders which deliver materials fast, evenly and at a savings. Each model will handle either dry or stockpiled fertilizer equally well. Complete free information may be obtained by circling Number 2 on CF's Information Service card, page 55.

Automatic Bag Closer

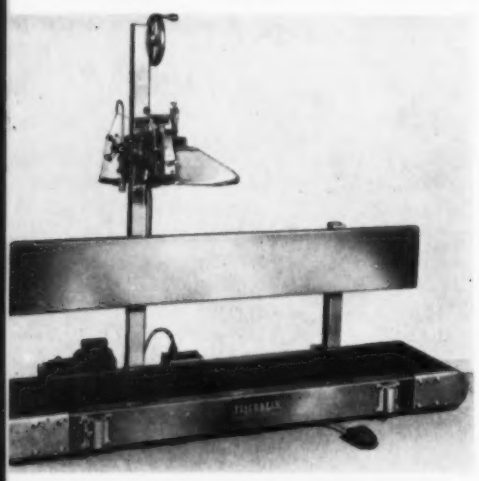
The introduction of a new bag closer making the closing of paper bags automatic has been announced by the Dave Fischbein Company.

The new Bag Closer, series BA, is designed so that the bags themselves start the sewing operation when they reach the sewing head. After the sewing is completed, the thread is cut automatically and the sewing action stops as the conveyor belt continues to move the bag.

Both the conveyor belt and the sewing machine have instantaneous start/stop controls, without lagging starts or coasting stops.

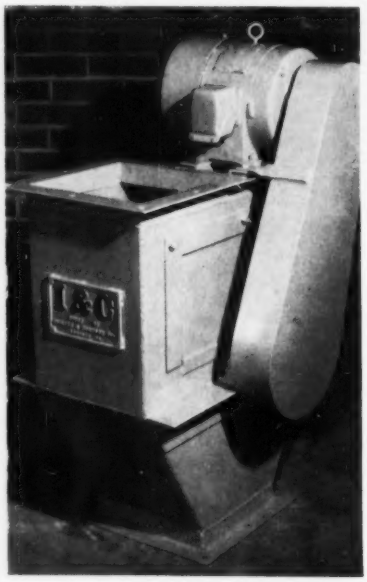
This new, easy-to-install unit closes paper bags at the rate of 30 feet per minute.

A complete Catalog-File of Fischbein Bag Closing Equipment may be obtained by circling Number 3 on CF's Information Service card, page 55.



Rotary Pulverizer

A fast, rugged and effective new rotary pulverizer is being offered by Inglett & Company. For pulverizing oversize material rejected by screening, the unit can deliver its power-



ful impact with either 21 sections of proof coil chain or 14 specially-designed sling bars, staggered on individual shafts rotating around a common 2-7/16" bearing mounted shaft.

Compact design of the machine permits easy installation at any point between the screen and the elevator. Two large access doors are provided to assure convenient inspection or maintenance. The I&C rotary pulverizer is designed to accommodate a wide variety of motor and drive combinations where special conditions require a deviation from the standard.

For a four-page, three-color brochure, circle Number 4 on CF's Information Service card, page 55.

Improved Moisture Balance

A new and improved moisture balance for fast and highly accurate determinations of moisture content in a wide variety of materials has been designed by Central Scientific Company.

Principal feature of the new model is its built-in autotransformer which regulates voltage automatically and provides more convenient temperature control than previous moisture balances in which the autotransformer was a separate unit.

Among the materials for which the balance may be used with a high degree of accuracy and reliability are: chemicals and fertilizer.

Full information can be obtained by circling Number 5 on CF's Information Service card, page 55.

Polyvinyl Chloride Fans

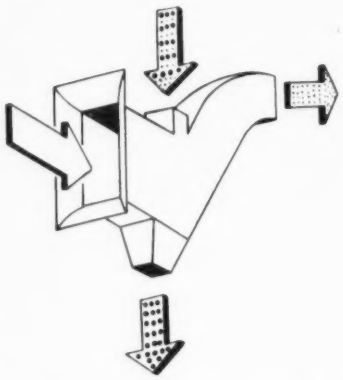
Atlas Mineral Products Company has announced release of two new bulletins concerning two lines of corrosion-proof rigid plastic fans. Bulletin #9-20 describes the centrifugal fans featuring sizes from 10½ to 35 inches, and Bulletin #9-21 details the twin-flow fans available in sizes from 12 to 48 inches.

These fans are made from polyvinyl chloride and offer exceptional chemical resistance with high structural strength in relation to weight. For a copy of these bulletins, circle Number 6 on CF's Information Service card, page 55.

New 'Gravitational' Classifier

The Buell Engineering Co. is offering a new high-efficency "gravitational" classifier which utilizes gravity, drag and centrifugal forces in a previously unused manner to separate dry fines from coarse materials. The new unit has no moving parts and power consumption is extremely low inasmuch as most of the energy required is to overcome draft losses which range from 0.5 to 4" WG.

The new classifier may be used in classifying fertilizers and other materials.



Material enters the classifier at the top and low velocity air is blown through it at right angles as it cascades downward. The air stream then turns sharply upward and passes between widely spaced vanes as it enters the outlet duct. In so doing, particles smaller than a given size are carried through the outlet and particles larger than this size impinge on the vanes and are thrown back into the feed curtain, or, if large enough, simply continue straight downward unaffected by the air stream. The "cut point" is controlled by regulating the air velocity.

The Gravitational Classifier is recommended for applications where the cut point is between 50 and 10 mesh (297 to 1651 micron). For finer classification, the Buell Gravitation-

al-Inertial or Centrifugal Classifier are recommended.

Further information may be obtained by circling Number 7 on CF's Information Service card, page 55.

Plastic Fittings For Piping

Victaulic Company of America has announced a complete line of full-flow molded plastic pipe fittings with grooved ends, for quick-jointing plastic pipe with Victaulic mechanical couplings. The new fittings are molded in sizes from 1½-inch to 8-inch in three materials: regular polyethylene, special high temperature linear type polyethylene, and polypropylene.

Plastic fittings can match the piping material. Elbows, tees, crosses, 45 degree laterals, reducers, caps and flanged adapter nipples for jointing to bolted flange systems are available in all three materials.

Coupling absorbs expansion and contraction of the plastic pipe. The quick-coupled joints can also be put into service immediately. Flush interiors at the joints provide good flow characteristics.

Data and counsel are available by circling Number 8 on CF's Information Service card, page 55.

Electric Mortar Grinder

A new motor driven mortar and pestle which grinds any material quickly and thoroughly to any graduation required is now offered by Torsion Balance Company.

Both pestle and mortar are made from a special grade of hard porcelain which can grind such materials as coal, coke, quartzite, clinker, glass and fireclay. For grinding harder materials, three sets of mortars and pestles are available. One is made from a specially selected tough steel of high abrasion resistance, one from agate, and another from sintered corundum (100% Al_2O_3).

The mortar, driven by motor turntable, is easily detached and engaged without clamping or adjustment. The pestle head assembly, connected to a swivel joint, can be tilted away from the mortar with one movement, allowing free and unrestricted access to the mortar. For more information circle Number 9 on CF's Information Service card, page 55.

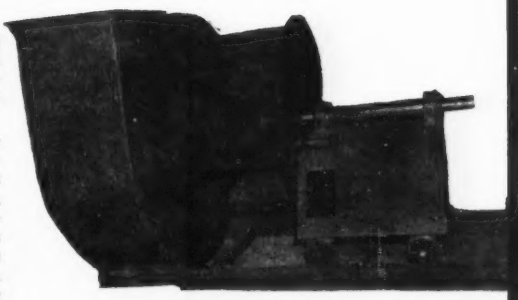
Batching Systems Brochure

A new comprehensive eight-page brochure on Automatic Batching Systems has been issued by Toledo Scale Division of Toledo Scale Corporation.

This brochure describes their latest product developments in the field of batching control. It shows large panels which interlock batteries of scales into automatic control systems, as well as compact units covering one or more ingredients. Emphasis is given both to remote setting of formulas and remote recording of digital data for complete batch control and recording.

An entire system, including scales, controls, cutoff, hoppers, feeders, gates and conveyors, as furnished and engineered by Toledo, is pictured and explained.

To obtain this Toledo Automatic Batching Systems brochure, circle Number 10 on CF's Information Service card, page 55.



New-Type Fan

A completely new line of fans made especially for the fertilizer industry have been introduced by "FESCO". These fans feature a rubber mounted inboard bearing that eliminates vibration that otherwise would be transmitted to the frame by build-up of material on the fan blades.

The whole fan pedestal and motor mount rolls out on ball bearing wheels to give easy access for cleaning when necessary. 36", 48" and 60" blade diameters are offered with capacities up to 40,000 c.f.m.

For further details, circle Number 11 on CF's Information Service card on page 55.

Vertical Mount Gearmotors

The Lima Electric Motor Co., Inc., has announced the addition of Vertical Gearmotors to their line of electric motors and speed reducers. These new units are available with either flanged mounting face, or with standard vertical extended housing. They are supplied in double or triple reduction units with Duti-Rated Lifetime gearing, in ratings from 1 to 75 HP, with reductions from 350 to 7½ RPM.

Built with standard Lima motors in dripproof, totally enclosed fan-cooled or explosion-proof enclosures, these units operate at normal torque, on 3 or 2 phase, 60 cycle, 208, 220/440 or 550 volts. Special voltages and

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Equipment News . . .

frequencies as well as mechanical modifications are also available.

For complete information, circle Number 12 on CF's Information Service card, page 55.

Impact-Type Breaker

A new impact-type breaker designed primarily for fertilizer operation is offered by "FESCO." The breaker features a design that allows a large door for easy cleaning.

The inboard bearing is mounted on rubber to prevent vibration from being transmitted to the frame and to relieve radial load on the bearing.

Standard A-11 "Z-Metal" chain links are used for breakers to provide a maximum of effective hard breaking area and minimum replacement cost. Hammer velocity can be high enough to give effective breaking down to 8-mesh. A floor mounted model as well as the elevator mounted model shown is available.

For complete information, circle Number 13 on CF's Information Service card, page 55.

Safeguard Diesel Fork Lift

A diesel-powered fork lift truck specially engineered to provide extra safety in areas and industries where additional safeguards are needed has just been introduced by Towmotor Corporation.

Designated the Towmotor Safeguard Diesel Fork Lift Truck, the new unit is available in 9 different models—with lifting capacities ranging from 3000 to 12,000 pounds.

The new lift truck is completely devoid of electrical components. It is equipped with hydraulic starter, mechanically-operated fuel, temperature and oil pressure gauges and a mechanical warning device. A low volatile fuel is used. The diesel-powered safety unit also features a water-cooled exhaust manifold and water muffler.

Additional information on the new lift truck, including optional features and equipment available, may be obtained by circling Number 14 on CF's Information Service card, page 55.

Photo-Drawing Technique

Easier and more effective use of engineering drawings has been made possible with the introduction of 'Photoneering,' a new process that combines photography and drawing.

Specifications can be drawn directly on a photograph taken from any angle or point of perspective. A special heat and humidity resistant plastic film sheet is used, which permits necessary changes or erasures, and is especially useful in plant modifications, model layouts, new products and field changes of equipment.

A four page brochure explains how photography and drawing combine to save time and money, and make engineering drawings easy to visualize with minimum interpretation. Sample and literature are available by circling Number 15 on CF's Information Service card, page 55.

Spherical Roller Bearings

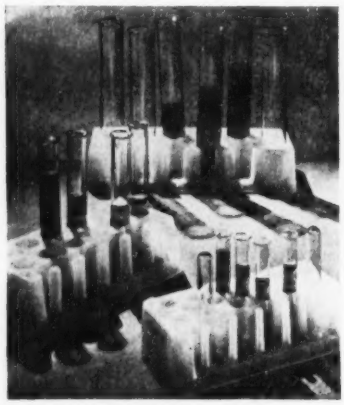
Three major design improvements have been combined to produce the highest capacity spherical roller bearings yet developed, according to Link-Belt Company. The completely new line of Link-Belt self-aligning spherical roller bearings is described by the company as one of its major product developments.

These features are: maximum diameter and quantity of convex rollers for each bearing size; precision machined centrifugally-cast bronze retainers, and high, heavy inner race shoulders. All components are in optimum balance assuring long carefree bearing performance on the most severe installations. The bearings also will be available in pillow blocks as well as direct shaft-mounted models.

For a copy of Link-Belt's new book No. 2760 describing the new line of self-aligning spherical roller bearings, circle Number 16 on CF's Information Service card, page 55.

Polyethylene Test Tube Racks

To eliminate the expense and annoyance of continually replacing broken and scratched test tubes, longer lasting, safe and attractive polyethylene test tube racks are now being distributed by the General Scientific Equipment Company.



Constructed of the finest polyethylene available, these unbreakable, lightweight, chemically resistent racks come in a variety of sizes to meet every laboratory need.

Full information is available by circling Number 17 on CF's Information Service card, page 55.

Materials News . . .

Mineral Filler Bulletin

A basic study of the characteristics and applications of 'Dicalite' diatomite mineral fillers is provided in Dicalite Technical Bulletin E41, just released by the Mining and Mineral Products Division of Great Lakes Carbon Corporation.

Bulletin supplies technical data on uses in many applications including chemical fertilizers and insecticides.

The 12-page brochure on these diatomaceous silica products includes an examination of the characteristics: chemical properties, density and bulking effects, particle structure, surface area, porosity and absorptivenes, heat conductivity and heat resistance, etc.

Copies of the brochure are available by circling Number 18 on CF's Information Service card, page 55.

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THE MAN WITH THE MULTIWALL PLAN

UNION PACKAGING SPECIALIST HENRY SCOTT

simplifies packer's inventory –trims costs by $42,000

"How can we get more out of our Multiwall dollars?"

The question, put by a Southern packer to Union Packaging Specialist Henry Scott, led to a complete analysis of the company's bagging operation. The analysis in turn produced three important recommendations. And $42,000 annual savings!

Union Multiwall Recommendations are based on this 5-Star Packaging Efficiency Plan

- DESIGN
- EQUIPMENT
- CONSTRUCTION
- SPECIFICATION CONTROL
- PLANT SURVEY

Working through Union's 5-Star Packaging Efficiency Plan, Scott reduced the size of one bag. The shorter Multiwall gives firmer packing and neater stacking. Further package engineering enabled the company to reduce its range of Multiwall bag styles and sizes by 30 per cent!

Union's Art Department also created a family of high-recognition designs for the firm's existing products. And finally, a brand new design which will help launch 400,000 tons of new product to be marketed this year.

Perhaps Union's 5-Star Plan can help unearth a money-saving idea for you. Perhaps several. Worth looking into, wouldn't you say?

Better Multiwall performance through better planning

union camp ®

UNION'S PACKAGE ENGINEERING DEPARTMENT will study your Multiwall bagging methods and equipment and make appropriate recommendations, regardless of the brand of Multiwalls you are now using.

UNION MULTIWALL BAGS

UNION BAG - CAMP PAPER CORPORATION

233 BROADWAY, NEW YORK 7, N. Y.

30-Year Sales Contract Extended

Duval Sulphur & Potash Company and Ashcraft-Wilkinson Company advise that they have extended the contract under which Ashcraft-Wilkinson Company represents Duval as its exclusive sales agent for potash and domestic sulphur.

This agency agreement commenced when Duval entered the sulphur industry some thirty years ago and has continued uninterrupted through the years. In 1950, the agreement was expanded to include Duval's production of Muriate of Potash.

'FULL ORBIT'

(Continued from page 23)

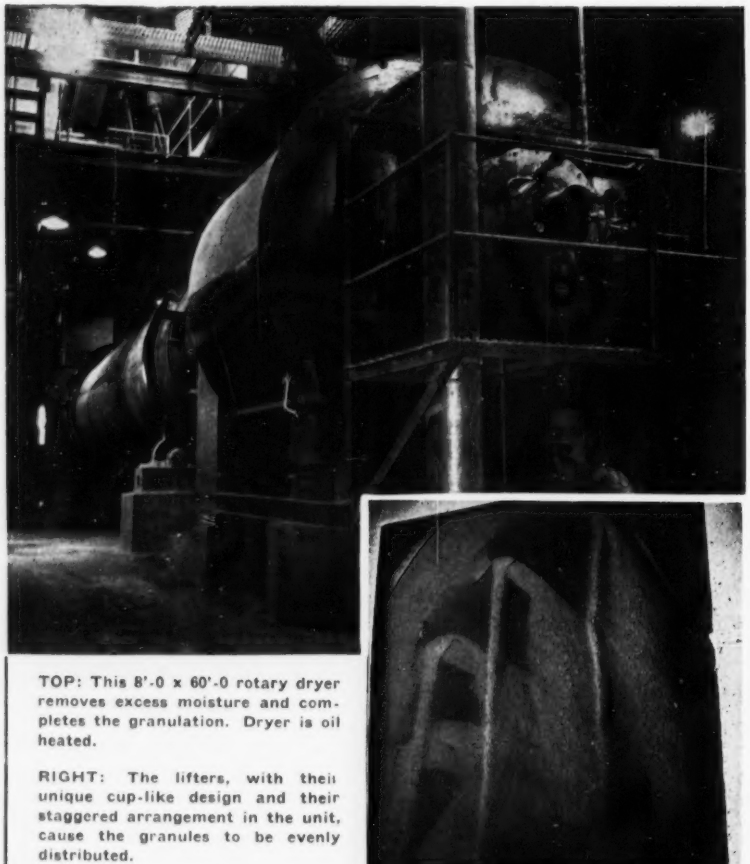
Mr. Cascino explained, "grew directly from the manufacturers' appreciation of our efforts to help him solve his problems. Very briefly, it was created to allow a discussion, between customer and supplier, of problems of mutual concern with a view toward arriving at solutions of mutual benefit. We think it may prove to be one of the most beneficial of all Full Orbit features, particularly from a broad industry standpoint."

Other innovations introduced at the "second stage" meeting in Skokie included an "Action Kit" service which provides customers with detailed and complete custom-made material to fit any project or program covered in the Full Orbit books.

These would be supplied by IMC on an order from its salesman.

"This is an outgrowth of our six months' experience with Full Orbit books," Mr. Cascino said. "We found, during the first six months, that the books did a splendid job of exciting manufacturers' interest in projects or promotions, but did not supply detailed material sufficient to enable him to carry through a project from start to finish without further help.

"This action kit is the answer to that need, and our salesmen see it as a most valuable addition to the Full Orbit service package," he said.



TOP: This 8'-0 x 60'-0 rotary dryer removes excess moisture and completes the granulation. Dryer is oil heated.

RIGHT: The lifters, with their unique cup-like design and their staggered arrangement in the unit, cause the granules to be evenly distributed.

A McDERMOTT 8 x 60 DRYER INSTALLATION AT THE SAGINAW PLANT OF THE AMERICAN AGRICULTURAL CHEMICAL CO.

Sound Engineering Economy and Consistently Superior Performance Are Built Into All McDermott

DRYERS—COOLERS—AMMONIATORS

McDermott Bros. Co.

Allentown, Pennsylvania

grants

Georgia . . . $2,000. A grant from NPFI to Georgia AES for support of a program demonstrating the value of using recommended rates of mixed fertilizer and nitrogen on pastures and corn, announced by NPFI's **S. L. Tisdale.** The demonstrations on 26 plots should do much to increase the awareness of Georgia farmers.

Illinois . . . $3,500. The Texas Company grant to **University of Illinois** will be used to seek new ways to apply anhydrous ammonia to soil as it is plowed. The presentation was made by Texaco agronomist **Dr. C. L. Swanson** to the University's agricultural engineering head, **F. B. Lanham.**

Kansas . . . $13,600. National Science Foundation grant to **Kansas State College** to support investigations on the nature and distribution of silica in plants over a 3-year period. **Francis C. Lanning** is the project leader.

Tennessee . . . $2,000. The **Tennessee AES** will conduct a series of fertilizer demonstrations in 1959 in one county in each of the five extension districts of the State, under this grant announced by **S. L. Tisdale** of NPFI, from whom the grant comes. The purpose—to demonstrate that sound feritlization and good management results in higher net farm income. The program is under the direction of **Dr. W. D. Bishop.**

Industry Meeting Calendar

DATE	EVENT	LOCATION	CITY
Feb. 12-13	Midwest Agronomist-Industry Meet	Edgewater Beach Hotel	Chicago, Ill.
June 9-10	Southern Fert. Control Officials	Velda Rose Motel	Hot Springs, Ark.
June 14-17	National Plant Food Institute	Greenbrier Hotel	Wh. Sul. Sprgs., W. Va.
July 7-9	Pacific N.W. Fert. Conference	Winthrop Hotel	Tacoma, Wash.
July 15-18	Southwest Fertilizer Conference	Galvez Hotel	Galveston, Tex.
Aug. 18-22	Canadian Fertilizer Assn.	Bigwin Inn	Lake of Bays, Ont.
Sept. 24-25	Northeastern Fertilizer Conference	Biltmore Hotel	New York City
Oct. 14-16	Pacific N.W. Fertilizer Convention	Chinook Hotel	Yakima, Wash.

Oregon Seeking Changes In Fertilizer Law

Two proposed amendments to the Oregon Fertilizer Law are designed to give the Director of Agriculture the power to set registration fees annually, but not above the present 10 cents per ton, and to clarify minor elements. The latter would give the Director authority, after a public hearing, to determine what minor elements can be put on a label.

The amendments will be introduced in the Oregon Legislature at the coming session by the Department of Agriculture as administrative measures. The department expects the Pacific Northwest Association to appear at the proper time before the Agriculture Committee to support these amendments. The Association's Oregon Trade Practices Committee has approved both of the amendments in principle.

H. J. Koch

A Letter from Africa

A most interesting leter was received last month from H. J. Koch, Technical Advisor (Fertilizers) African Explosives and Chemical Industries, Ltd., Johannesburg, saying he would be leaving soon for a trip to the U. S. Mr. Koch wrote:

"We take your monthly publication Commercial Fertilizer and Plant Food Industry regularly for five centres of our Company (African Explosives & Chemical Industries Ltd.) It is a valuable source of information to our fertilizer staff.

"In our four fertilizer factories involving a capital of approximately seventy million dollars (£23,000,000) we can produce over a million tons of single superphosphate containing 19% water soluble P_2O_5. Our ammonia capacity is 150,000 tons per annum and urea 120,000 tons per annum (this plant will only be in operation early 1960.) We have granulating capacity for over 400,000 tons per annum. As a result of certain developments we can claim that our granular products are as good as the best in the world. Visitors who have been in the U.S. and U.K. recently confirm this.

"Recent installations in bagging and loading are highly mechanised. Productivity (per individual) is consequently high. Accuracy of weights of bags to which we have given special attention is outstanding—quality control of weights is in operation as well.

"I am bringing a team of three over to the U.S. arriving in New York on January 12th. We propose visiting the works of several fertilizer manufacturing companies. I.M. & C. in Chicago will be our hosts for some of the time.

"The names of the other members of the team are Mr. G. Mrkusic, Dipl. Ing. (Vienna), and Mr. J. P. Wapenaar. Mr. Mrkusic is in charge of our very modern Rodia factory, just completed, near Salisbury in the Federation. Here we make phosphoric acid (Prayon process) and granular mixed fertilizers containing approximately 40% of plant foods including up to 3% N from ammonium nitrate. The feature of these mixtures is that the P_2O_5 must be water soluble. It was an intriguing problem to solve.

"Mr. Wapenaar is more interested in ammonia and urea production as well as U.A.L.

"As Technical Adviser (Fertilizers) I am responsible for all technical aspects of production of fertilizers at our three factories (one produces over 600,000 tons single superphosphate per annum). One important aspect of my duties is to keep abreast of technical developments in the rest of the world.

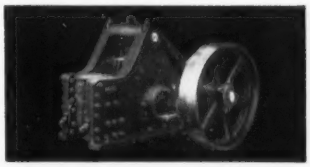
"By exchanging information with fertilizer manufacturers abroad we already have a world wide circle of friends. My last visit to the U.S. and Canada was in 1955."

NO MAJOR REPAIRS IN 25 YEARS*

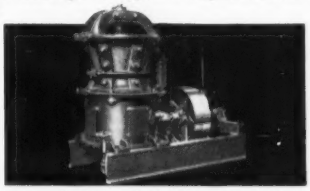
Sturtevant Construction Assures Long Mill Life at Top Loads

Sturtevant crushing and grinding machinery answers the long life top-load production problem for medium to small size plants. Many Sturtevants have been operating above rated capacities for more than 25 years, and *without a major repair.*

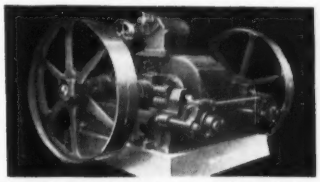
"Open-Door" design gives instant accessibility where needed — makes cleanouts, inspection and maintenance fast and easy. Machines may be set up in units to operate at equal quality and capacity.



Jaw Crushers — Produce coarse (5 in. largest model) to fine (⅛ in. smallest model). Eight models range from 2 x 6 in. jaw opening (lab model) to 12 x 26 in. Capacities to 30 tph. All except two smallest sizes operate on double cam principle — crush double per energy unit. *Request Bulletin No. 062.*



Rotary Fine Crusher — Reduce soft to medium hard 3 to 8 in. material down to ¼ to 1¼ in. sizes. Capacities up to 30 tph. Smallest model has 6 x 18 in. hopper opening; largest, 10 x 30 in. Non-clogging operation. Single handwheel regulates size. *Request Bulletin No. 063.*



Crushing Rolls — Reduce soft to hard 2 in. and smaller materials to from 12 to 20 mesh with minimum fines. Eight sizes, with rolls from 8 x 5 in. to 38 x 20 in.; rates to 87 tph. Three types — Balanced Rolls; Plain Balanced Rolls; Laboratory Rolls — all may be adjusted in operation. *Request Bulletin No. 065.*

Hammer Mills — Reduce to 20 mesh. Swing-Sledge Mills crush or shred medium hard material up to 70 tph. Hinged-Hammer Pulverizers crush or shred softer material at rates up to 30 tph. Four Swing-Sledge Mills with feed openings from 6 x 5 in. to 20 x 30½ in. Four Hinged-Hammer Pulverizers with feed openings from 12 x 12 in. to 12½ x 24 in. *Request Bulletin No. 084.*

**Reports Manager W. Carleton Merrill concerning Sturtevant Swing-Sledge Mill at James F. Morse Co., Boston.*

STURTEVANT
MILL COMPANY
Clayton St., Boston 22, Mass.

MATERIALS MARKETS

ORGANICS: Fertilizer organics continue in tight supply position with demand strong. Producers of Leather Nitrogenous Tankage are sold out for the balance of the season at prices ranging from $3.50 to $4.75 per unit of Ammonia bulk, f.o.b. shipping point. Where obtainable on resale market, prices are 50¢ per unit Ammonia higher.

SEWAGE SLUDGE: The several producers continue in sold up position for the balance of the season. A major production at Chicago is nominally priced at $3.25 per unit of Ammonia and 50¢ per unit of APA, bulk f.o.b. Chicago.

CASTOR POMACE: Domestic material is nominally $34.00 to $35.00 per ton in bags, f.o.b. New Jersey shipping point, but is entirely under contract through May. Some imported material has been arriving at $5.00 per unit of Ammonia, in bags, f.o.b. Tampa, Florida.

DRIED BLOOD: Unground sacked blood is indicated in the Chicago area around $7.75 per unit of Ammonia and around New York $6.00 to $6.25.

POTASH: Domestic Potash prices remain steady at previously announced seasonal schedules. Imported Potash is arriving against contracts, and prices for that material are also steady.

GROUND COTTON BUR ASH: Supply position of this type of Potash, primarily in the form of Carbonate of Potash, has improved as expected for this time of the season, and demand is steady at prices previously announced, which approximate the delivered cost of Domestic Sulphate of Potash for most destinations.

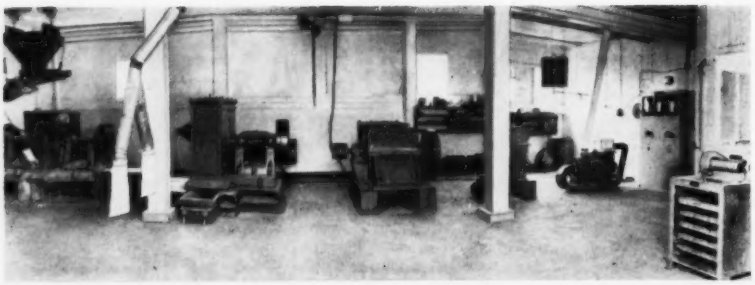
SUPERPHOSPHATE: Prices continue steady and demand improving in seasonal volume.

AMMONIUM NITRATE LIMESTONE: A leading domestic producer recently announced a $2.50 per ton increase, but later revised this to a $1.00 per ton increase. The new prices for both imported and domestic material will be $45.00 per ton in bags and $41.50 per ton in bulk f.o.b. Hopewell, Virginia and at usual Atlantic and Gulf ports. Effective January 17th, movement to consumers has been at a very heavy rate since the time the advance in price was announced.

SULPHATE OF AMMONIA: Supply and demand are in good balance at prices that are steady at $32.00 per ton bulk for Coke Oven Type, and at $35.00 per ton for granular synthetic type, f.o.b. origin. Port prices continue at $36.00 to $39.00 per ton at Atlantic coast ports.

NITRATE OF SODA: Effective the 17th of January, price advanced $1.00 per ton to a new basis of $45.50 in bags, and $41.50 in bulk, f.o.b. Atlantic and Gulf ports. Movement of this has been quite active from the ports by users trying to take in as much as possible before the advance in price.

GENERAL: Fertilizer mixing activity in the Southeast is increasing in tempo in expectation of Spring movement to consumers. Raw materials generally are in adequate supply, with the possible acception of organic fertilizer ammoniates, which are in quite tight supply.



New Stedman Test Lab

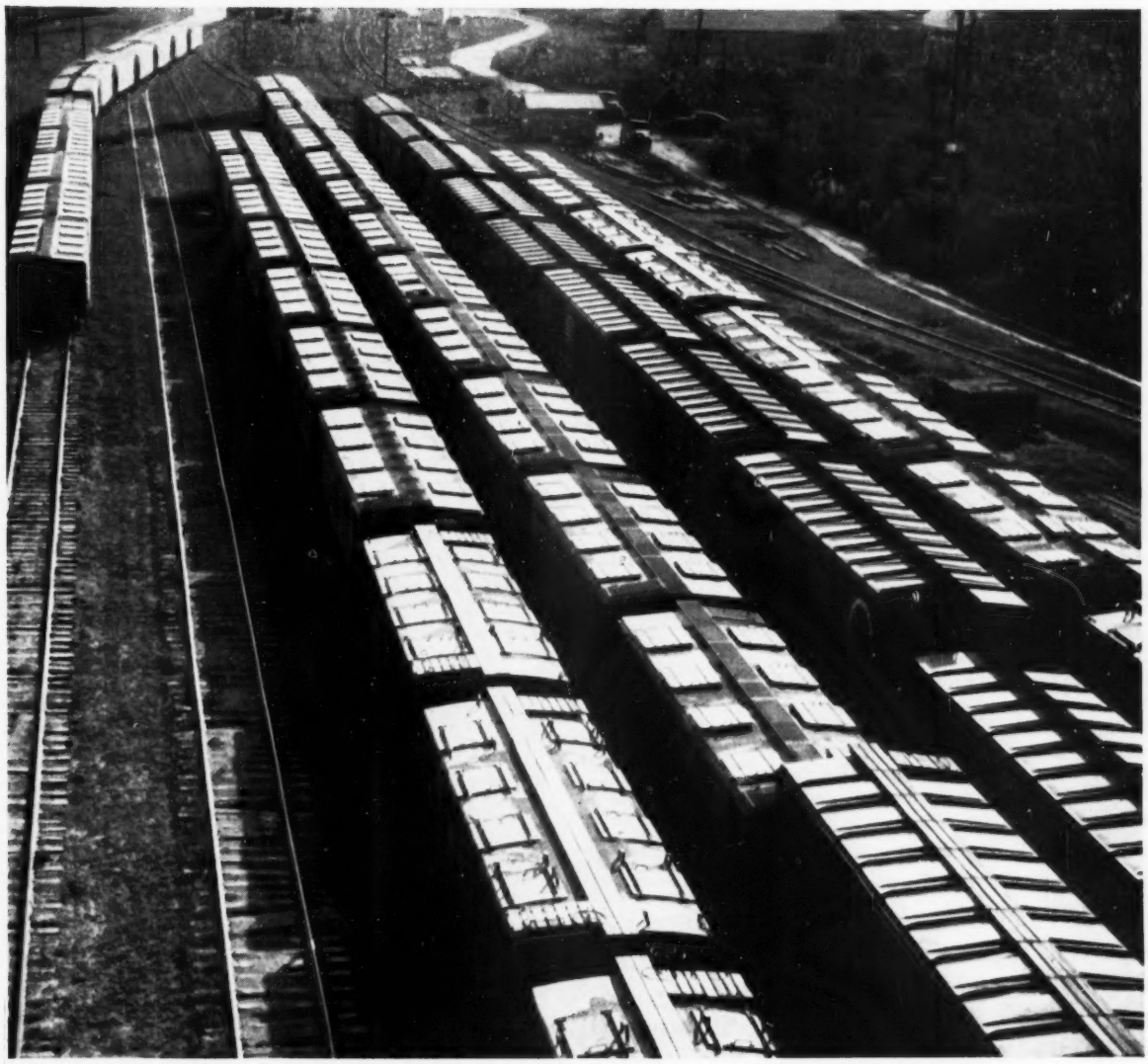
In its new testing laboratory at Aurora, Indiana, The Stedman Foundry and Machine Company, Inc. has installed full-size production machines plus automatic recording instruments to accurately determine H.P. requirements, speeds and capacities of various materials being tested. Screen analysis and actual samples of product are furnished to prospective customers. A wide variety of materials, such as chemicals, minerals, stone, gravel, etc. can be analyzed in the new testing laboratory. Guesswork is eliminated. Included in the Stedman Laboratory are full-size hammer mills, impactors, and cage disintegrators, so that the best type of crusher or pulverizer to meet the particular requirements for today's specifications can be easily determined. Use of the new Stedman Testing Laboratory is open to readers of Commercial Fertilizer without obligation or cost. For complete information, write, phone or wire Stedman Foundry and Machine Company, Aurora, Indiana, U.S.A. A form listing all necessary details will be forwarded without obligation.

CF-Staff Tabulated TONNAGE REPORTS

FERTILIZER TONNAGE REPORT (in equivalent short tons) Compiled by Cooperating State Control Officials and Tabulated by COMMERCIAL FERTILIZER Staff

	December		November		July-Sept. Qtr.		January-June		July-December		YEAR (July-June)	
STATE	1958	1957	1958	1957	1958	1957	1958	1957	1957	1956	1957-58	1956-57
Alabama	.....	14,802[1]	29,453	27,918	90,652	76,674	734,062	808,901	172,721	174,713	906,783	983,614
Arkansas	5,434	4,898	4,387	3,064	42,100	44,923	226,889	265,235	62,752	59,915	289,641	325,150
Georgia	49,835	45,239	87,336	78,061	107,373	100,432	944,618	980,824	269,529	253,559	1,214,417	1,234,383
Kentucky	.....	12,716[1]	.....	4,486[1]	38,396	38,972	435,023	444,107	88,771	90,284	523,794	534,391
Louisiana	6,511	6,449	10,677	7,100	29,933	31,773	232,743	200,277	64,192	71,129	296,935	271,406
Missouri	44,459	31,484	40,147	21,963	164,296	188,293	420,615	460,487	335,312	331,343	755,927	791,830
N. Carolina	.....	31,187[1]	27,189	25,323	89,602	72,305	1,261,685	1,300,353	199,446	216,234	1,461,131	1,516,587
Oklahoma	2,589	2,486	3,478	1,965	43,410	29,832	55,964	52,836	51,436	54,509	107,400	107,345
S. Carolina	18,332	20,270	23,140	19,906	58,100	48,486	615,733	694,571	116,874	122,929	732,607	817,500
Tennessee	10,352	6,000	4,503	30,036	79,343	69,431	307,182	383,457	135,717	141,181	489,668	524,668
Texas	24,878	21,027	14,829	11,279	103,794	109,118	452,327	392,770	213,801	202,406	666,128	595,176
Oregon	(reports compiled quarterly)				33,001	27,653	.....	138,926[1]	45,054	62,147	.....	201,073[1]
California	(reports compiled quarterly)				205,029	216,479	679,577	663,484	443,658	416,264	1,123,235	1,079,748
Virginia	(reports compiled quarterly)				76,031	74,379	549,773	600,158	140,783	154,075	690,556	754,233
Indiana	(reports compiled semi-annually)						795,506	781,268	284,959	305,917	1,080,465	1,087,185
New Hampshire	(reports compiled semi-annually)						16,053	15,730	3,966	3,253	20,019	18,983
TOTAL	162,390	137,853	245,139	226,615	1,161,060	1,128,750	7,886,039	8,154,700	2,706,469	2,715,567	10,594,220	10,808,120

(not yet reported) * Not compiled [1] Omitted from column total to allow comparison with same period of current year.



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SITUATION WANTED

FERTILIZER PLANT SUPERINTENDENT, 20 years experience in all phases of plant operation, including complete supervision and control of production, granulation, shipping, superphosphate manufacturing (batch and continuous), fluorine recovery, and complete plant maintenance. Will relocate—preferably in the South. Box # 2, Commercial Fertilizer, 75 - 3rd St., N. W. Atlanta 8, Georgia.

EQUIPMENT FOR SALE

FOR SALE: One Link Belt vibrating screen size 4 ft. by 8 ft. Serial U P 148. Equipped with 3 mesh screen. Driven with pulley and belt from main drive. Also 1 Atlas portable conveyor length 25 ft. Equipped with steel hopper and 18 inch rubber belt and 5 h.p. enclosed motor 220 vlts. Also several extra motors, starters and switch boxes. All for sale reasonable. Write or call Maybank Fertilizer Corp., Charleston, S. C.

MACHINERY for complete mixing and shipping of fertilizers; consisting of ½ ton Sackett gravity mixer, scale, elevators and pulverizers. Also, batching and EXACT weight bagging scales. Phone or write, Farmers' Fertilizer & Feed Company, Westminister, Maryland.

FOR SALE—1 New Stedman Type BX 20 x 18 Hammermill equipped with 4 row rotor with ⅞" manganese hammers and complete with 220V reduced voltage type compensator. Mill direct connected to 20 HP, 1200 RPM, 220/440 Volt, 3 Phase, 60 Cycle Totally Enclosed Fan Cooled Motor. Mill and motor mounted on integral base. Box # 20, % Commercial Fertilizer, 75 - 3rd St., N. W. Atlanta 8, Georgia.

PRINTING PRESS FOR BURLAP BAGS—Two color Schmutz Model 29-918—Good condition. Asking $350. Wm. B. Tilghman Co. Owner, Salisbury, Maryland.

FOR SALE: Dewatering Presses, Davenport No. 1A, No. 2A, No. 3A, Louisville 8-roll 36". Heil Dryer 8-25, Aluminum Tanks 4,000 gal., 2,100 gal. Spiral Ribbon Mixers 200, 75 cu. ft. (8) Louisville Rotary Steam Tube Dryers, 6' x 50', 6' x 30', 6' x 25'. Screw conveyor, Trough Belt Conveyor, Bucket Elevator, Bins, etc. **Perry Equipment Corp.,** 1426 N. 6th St., Philadelphia 22, Pa.

FOR SALE: One used Ransome 1-ton batch mixer, Serial No. 5-512, Mfgd. by Worthington Pump & Machinery Corp., priced at $3000.00 F.O.B. our factory North Charleston, S. C. Price includes one vibrating screen No. UP 148. Also one 30 h.p. General Electric squirrel cage motor 220 vlts. Also top and bottom clod breaker. Front and rear elevator chain and buckets. Top and bottom sprockets, pulleys, belts etc. All in splendid running condition, buyer to dis-assemble and load. Subject to prior sale. Call or write Maybank Fertilizer Corp., Charleston, S. C.

FOR SALE: 2-7'6" x 55' and 80" x 65' Rotary Dryers, 3 - Louisville 6" x 50' Rotary Steam Tube Dryers, also Mixers, Storage Tanks, Screens, Elevators. Send us your inquiries. BRILL EQUIPMENT COMPANY, 2401 Third Ave., New York 51, N. Y.

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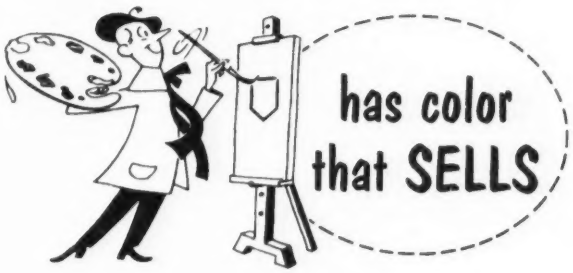

Use Fur-Ag in your mixed fertilizers and your goods take on a rich, dark color that invites sales. It reduces bag-set, speeds up curing in the pile and provides bulk. Sterilized Fur-Ag is free from plant diseases, insects, weed seeds and it's readily available all year 'round at surprisingly low cost. For full information, write for Bulletin 127.

The Quaker Oats Company
CHEMICALS DIVISION
345 The Merchandise Mart, Chicago 54, Illinois

Safety Section Plans 1959 Activities Program

Executive Committee to meet in Atlanta February 13

Pelton

Perrine

Raney

At the last meeting of the Fertilizer Section, National Safety Council, held in Chicago, the members chose George L. Pelton of the Smith Agricultural Chemical Company, Columbus, Ohio as general chairman for the ensuing year with Elmer C. Perrine of Allied Chemical Corporation, Nitrogen Division, New York City chosen as vice-chairman and Ansell I. Raney, Phillips Chemical Company, Bartlesville, Oklahoma as secretary. All these officers have been very active in safety work in connection with the National Safety Council for several years.

Among the first duties of the new General Chairman was the modernization of the By-laws of the Fertilizer Section. The next Executive Committee meeting is scheduled to be held February 13, 1959 at the Heart of Atlanta Motel, Atlanta, Georgia.

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▸Granulators*
▸Conveyors
▸Elevators
▸Coolers
▸Dryers

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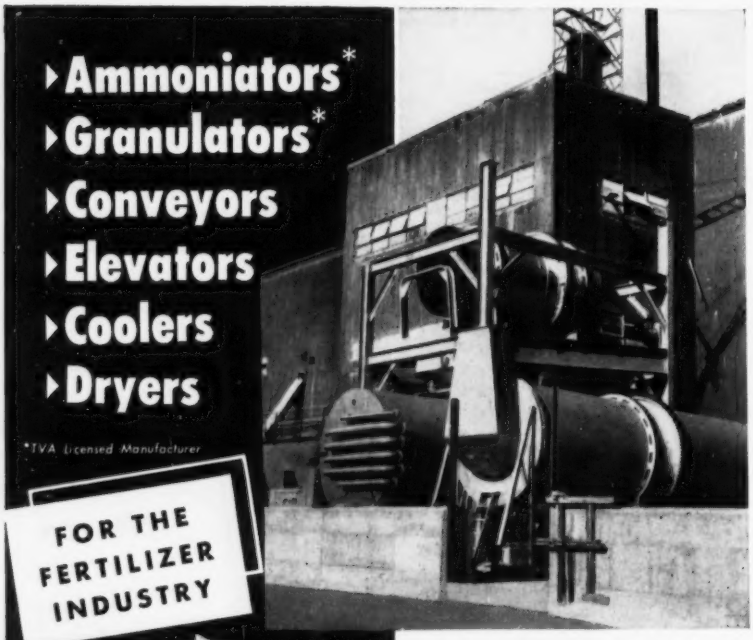
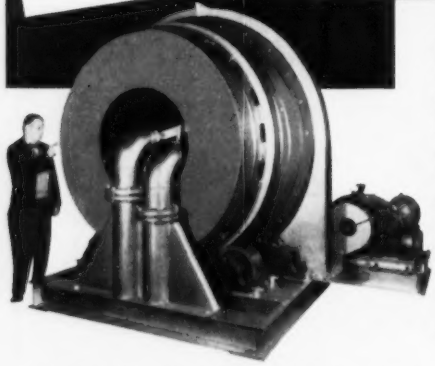
FOR THE FERTILIZER INDUSTRY





A Renneburg Continuous Combination Ammoniator-Granulator, a Renneburg DehydrO-Mat Dryer with special refractoryless gas-fired furnace, and a Renneburg Straight Shell Cooler . . . being installed in a 30-ton-per-hour granular plant of one of the leading mid-western fertilizer producers.

RENNEBURG CONTINUOUS COMBINATION AMMONIATOR-GRANULATOR

This rugged and highly-versatile unit is being used for government research work and experimentation in plant size quantities.

Other chemical and fertilizer processing equipment manufactured by Renneburg includes: • Ammoniators • Granulators • Dryer Furnaces • Complete Air Handling Systems • Pilot Plants • DehydrO-Mat Combination Dryers and Coolers

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Pioneers in the Manufacture and Development of Processing Equipment for over 80 years.

Monsanto Sets Safety Record

Monsanto Chemical Company set a new safety record during 1958 with an accident frequency rate of .67 major injuries per million man-hours worked at its 38 locations. The company's best former safety mark of .95 major injuries per million man-hours was established in 1956.

The 1957 all-chemical industry safety record, the latest reported by the National Safety Council, is 3.55 major injuries per million man-hours worked.

C-I-L 15-Year Record

Employees of the Halifax fertilizer plant of Canadian Industries Limited, celebrated a safety record of more than 15 years without a lost-time accident at a dinner in the Nova Scotian Hotel.

This achievement won for them their fourth successive C-I-L prize, highest award under the company's no-accident record plan.

Bonny Lake Gets Award

W. R. Fort, manager of W. R. Grace & Co's. Davison Chemical Division, Florida phosphates, announced that the company's Bonny Lake Mine has been awarded a certificate of achievement in safety by the United States Bureau of Mines. The announcement was received from James Westfield, assistant director, health and safety, Bureau of Mines, Washington.

The industry loses 5 to 6 million dollars a year through overages (fertilizer containing more plant food than guaranteed) says NPFI.

Accomplishment Report

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